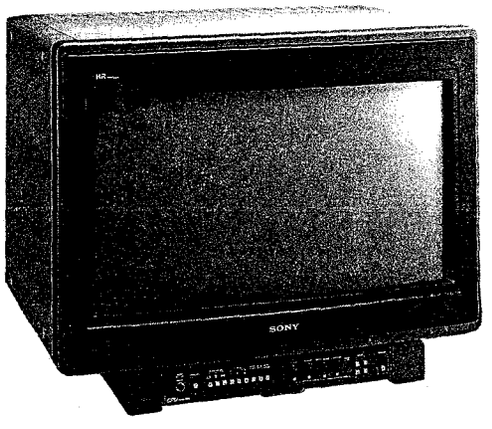
SONY

TRINITRON® COLOR VIDEO MONITOR

BVM-2811
BVM-3011
BVM-3011P



BVM-2811
Chassis No. SCC-G09A-A
BVM-3011
Chassis No. SCC-G08A-A
BVM-3011P
Chassis No. SCC-G10A-A

HR TRINITRON

OPERATION AND MAINTENANCE MANUAL
1st Edition
Serial No. 2000001 and Higher (BVM-2811)
Serial No. 2000001 and Higher (BVM-3011)
Serial No. 2000001 and Higher (BVM-3011P)

WARNING

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

この装置は、第一種情報装置(商工業地域において使用されるべき情報装置)で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会 (VCCI) 基準に適合しております。

従って、住宅地域またはその隣接した地域で使用すると、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをしてください。

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der Farb-Videomonitor BVM-3011P in Übereinstimmung mit den Bestimmungen der BMPT-Amtsblatt Vfg 243/1991, 46/1992 und 89/1992 funkentstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z.B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung. Dem Bundesamt für Zulassungen in der Telekommunikation wurde das inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Sony Deutschland GmbH
Hugo Eckener Str 20
D-5000 Köln 30

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ! ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION AU COMPOSANT AYANT RAPPORT A LA SÉCURITÉ!!

LES COMPOSNATS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE ! SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DESS SUPPLEMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT SONT INDETIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.

CAUTION!!

DO NOT USE THE EXTERNAL DEGAUSSER TO DEMAGNETIZE THE SCREEN.
BE SURE TO USE THE DEGAUSS SWITCH ON THE FRONT PANEL.

ATTENSION!!

NE PAS UTILISER DE DÉMAGNÉTISEUR EXTÉRITUR POUR DÉMAGNÉTISER L'ÉCRAN.
UTILISER LA TOUCH DE DÉMAGNÉTISATION (DEGAUSS) SUR LA PANNEAU FRONTAL.

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Section 1 Operation

1-1. Overview

1-1-1. Features

The BVM-2811 and BVM-3011P are high-performance color video monitors designed for critical evaluation of video signals in broadcasting stations and production houses.
The BVM-2811 is the NTSC model intended for use in NTSC color standard areas and the BVM-3011P is the PAL model for the PAL color standard areas. By using optional plug-in type decoder boards, both models permit any of the NTSC, PAL, SECAM, D1 and D2 video signals to be monitored.
The differences between models are clarified in the texts.

High-resolution picture
The Super Fine Pitch Trinitron picture tube (0.35-mm phosphor trio pitch) gives a high resolution, high contrast picture. Horizontal resolution is 950 TV lines at the center of the picture.

Stabilized color temperature
The incorporated beam control circuit maintains the color temperature constant for a long period of time.

16:9 wide screen
The 16:9-aspect picture tube is employed for monitoring the increasing number of wide-screen programs. The aspect can be switched from 16:9 to 4:3, as desired.

Split screen for precise picture confirmation
The lower half of the picture can be displayed in monochrome mode while the upper half is displayed in color mode. This facilitates confirmation of the luminance and chrominance channels, evaluation of the noise in the chrominance or luminance channel, etc.

Blue-only mode for precise evaluation of noise components
In blue-only mode, an apparent monochrome display is obtained with all three control grids driven with a blue signal. This facilitates color saturation and phase adjustments and observation of VTR noise.

Easy and precise convergence adjustment
The convergence can be adjusted at 15 points of the screen. This system facilitates adjustment of the peripheral areas of the screen.

Easy-to-use menu operations
The essential parameters to be preset for video monitoring can be easily set by selecting menu options displayed on the screen.

Beam landing adjustment
When installing the monitor, the built-in beam landing adjustment circuitry permits you to correct the beam landing which may be affected by horizontal terrestrial magnetism.

D-1 format serial digital signal inputs (BVM-2811)
The BVM-2811 is equipped with two inputs to accept D-1 format serial digital signals through coaxial cables.
The serial inputs have the respective active-through outputs, which permit the input signals to be distributed to other video equipment up to 200 m[1)] away.

Other features
- Picture setup function facilitating adjustment of the monitor's reference black for the black level of an incoming video signal
- Pulse cross function for simultaneous checking of the horizontal and vertical sync signals or VITS (Vertical Interval Test Signal)
- Built-in crosshatch and 100% white signal generators, facilitating monitor setup
- VITC (Vertical Interval Time Code) display possible using the optional BKM-1460 VITC adaptor
- Auto chroma/phase adjustment, automatic white balance adjustment etc. are possible using the optional BKM-2056 auto set-up adaptor.
- Precise setting of black level of the monitor, using the optional BKM-1480 black level signal generator
- A drawer containing convergence, white balance and menu controls and other function selectors
- High-performance comb filter available for the BVM-2811 as built-in standard. (For the BVM-3011P, the BKM-1422 is available as an option.)
- Auto and manual degaussing
- Three-position AFC switch
- Overdrive protection circuit to protect against picture tube damage

1) Max. 200-m transmission is guaranteed only when a specific cable is used. The cable should be a 75-ohm 5C-2V coaxial one assuring signal deterioration less than 25 dB in a condition of 10 MHz signal transmission with 1 km in length (e.g. Fujikura's 5C-2V (RG-6AU)).

1-1-2. Options

The following optional accessories are available for flexible changes and enhancement of the functions of the monitor.

Caution

When installing the optional boards, be sure to perform the necessary settings by following the procedure mentioned in "To specify the installed optional boards" of "1-4-7. Defining the Monitor Configuration." If the settings are not correctly performed, the optional boards may not function properly.

BKM-1410 NTSC adaptor (BC board) [built-in standard for the BVM-2811]
Decoder board for the NTSC color system

BKM-1412 NTSC comb adaptor (BT board) [built-in standard for the BVM-2811]
Dynamic comb filter board for the NTSC color system

BKM-1420 PAL adaptor (BD board) [built-in standard for the BVM-3011P]
Decoder board for the PAL color system

BKM-1421 PAL-M adaptor (BM board)
Decoder board for the PAL-M color system

BKM-1422 PAL comb adaptor (BT board)
Comb filter board for the PAL color system

BKM-1430 SECAM adaptor (BE board)
Decoder board for the SECAM color system

BKM-1440 RGB/component adaptor (BF board)
Decoder outputs of RGB or component signals

BKM-1460 VITC adaptor (BL board)
Reader of Vertical Interval Time Code

BKM-1470 safe area display (BQ board)
For displaying the safe area

BKM-1480 black level signal generator (BS board)
For generating black level signals

BKM-2053 auto set-up probe
For auto set-up operation with the BKM-2056 auto set-up adaptor

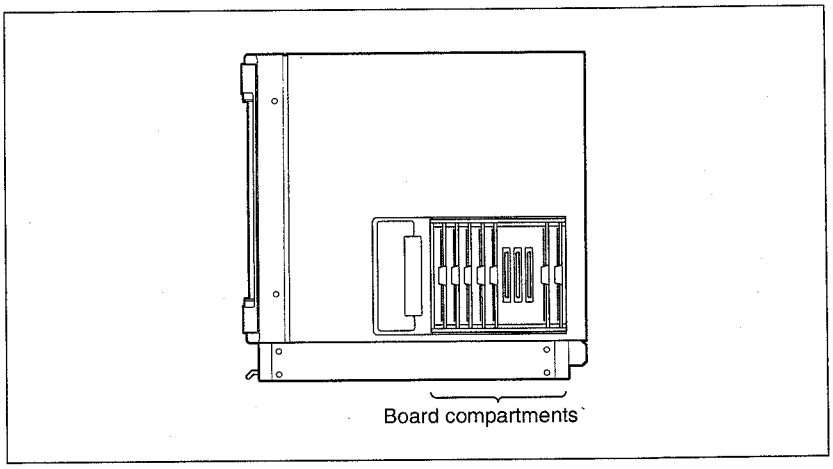
BKM-2056 auto set-up adaptor (BN, BO and BP boards)
For auto chroma/phase adjustment, auto white balance adjustment, and selection of color temperature

BKM-2085-20 digital 4:2:2 serial input kit (BA3 and BV boards)
[built-in standard for the BVM-2811]
For two serial inputs of component digital video signals

BKM-2090-20 D-2 serial input kit (BA3 and BU boards)
For two serial inputs of a digital composite video signal

Combination of the optional boards

The BVM-2811/3011P is equipped with the board compartments B1 through B5 behind the right-side panel, each of which can hold an optional board selected from the B boards listed above.



Right-side view

The BVM-2811 comes from the factory with the BV (digital 4:2:2 serial input kit), BT (NTSC comb adaptor) and BC (NTSC adaptor) boards installed in compartments B1, B4 and B5.
The BVM-3011P comes from the factory with the BD (PAL adaptor) boards installed in compartment B5.
Note that the combinations of boards are limited by the allowable board assignments, as shown in the table on the next page.
Add the desired boards or replace the supplied boards with optional boards, referring to the table on the next page.

Notes

- The compartments other than B1 through B5 are reserved for the supplied BA/BA3, BG, BH, BI and BJ boards. Be sure to use these boards in the respective compartments having the same names.
- Do not leave compartment B5 empty. Be sure to insert one of the boards specified in the table on the next page. If no board is inserted, the luminance/chrominance or luminance channel will not be activated in composite signal mode.

Board assignment

Board name	Function	Compartment name				
		B5	B4	B3	B2	B1
BT (BKM-1412)	NTSC comb filter	○	○	○	○	○
BT (BKM-1422)	PAL comb filter	○	○	○	○	○
BC (BKM-1410)	NTSC decoder	○	○	○	○	○
BD (BKM-1420)	PAL decoder	○	○	○	○	○
BE (BKM-1430)	SECAM decoder	○	○	○	○	○
BM (BKM-1421)	PAL-M decoder	○	○	○	○	○
BF (BKM-1440)	RGB/component adaptor	X	X	○	X	X
BL (BKM-1460)	VITC reader	X	X	X	○	X
BQ (BKM-1470)	Safe area display	X	△	X	○	X
BS (BKM-1480)	Black level signal generator	○	○	○	○	○
BN, BO, BP (BKM-2056)	Auto set-up adaptor	○	○	X	X	X
BV, BA3 (BKM-2085-20)	Digital 4:2:2 serial interface	X	X	X	X	○
BU, BA3 (BKM-2090-20)	D-2 serial interface	X	X	X	X	○

○ : acceptable
× : not acceptable
△ : acceptable but the button settings on the subcontrol panels cannot control the display.

Notes

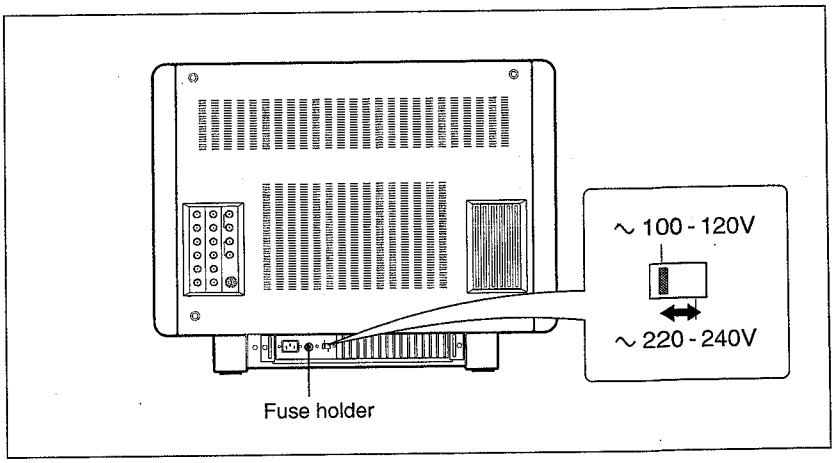
- Do not use the BD (PAL decoder) and the BM (PAL-M decoder) boards simultaneously. This causes malfunctions of the monitor.
- The BKM-2085-20 is the built-in standard for the BVM-2811. When some optional boards listed above are used in combination, note that the following functions of these boards are not operative.

Boards	Inoperative function
BKM-1440 RGB/component adaptor	All functions
BKM-2090-20 D-2 serial interface	
BKM-2056 Auto set-up adaptor	• Function to store color temperatures for the standard monitor (without auto set-up function) • Function to detect color data of the monitor without auto set-up function

For details on installation and functions of the optional boards, refer to the operation and maintenance manuals of the boards.

1-2. Voltage Selection

The BVM-2811 operates on 100-120 V AC and the BVM-3011P operates on 220-240 V AC.
Before connecting the unit to an AC outlet, make sure the voltage selector at the rear of your monitor is set for the appropriate voltage. If not, change the position of the selector.



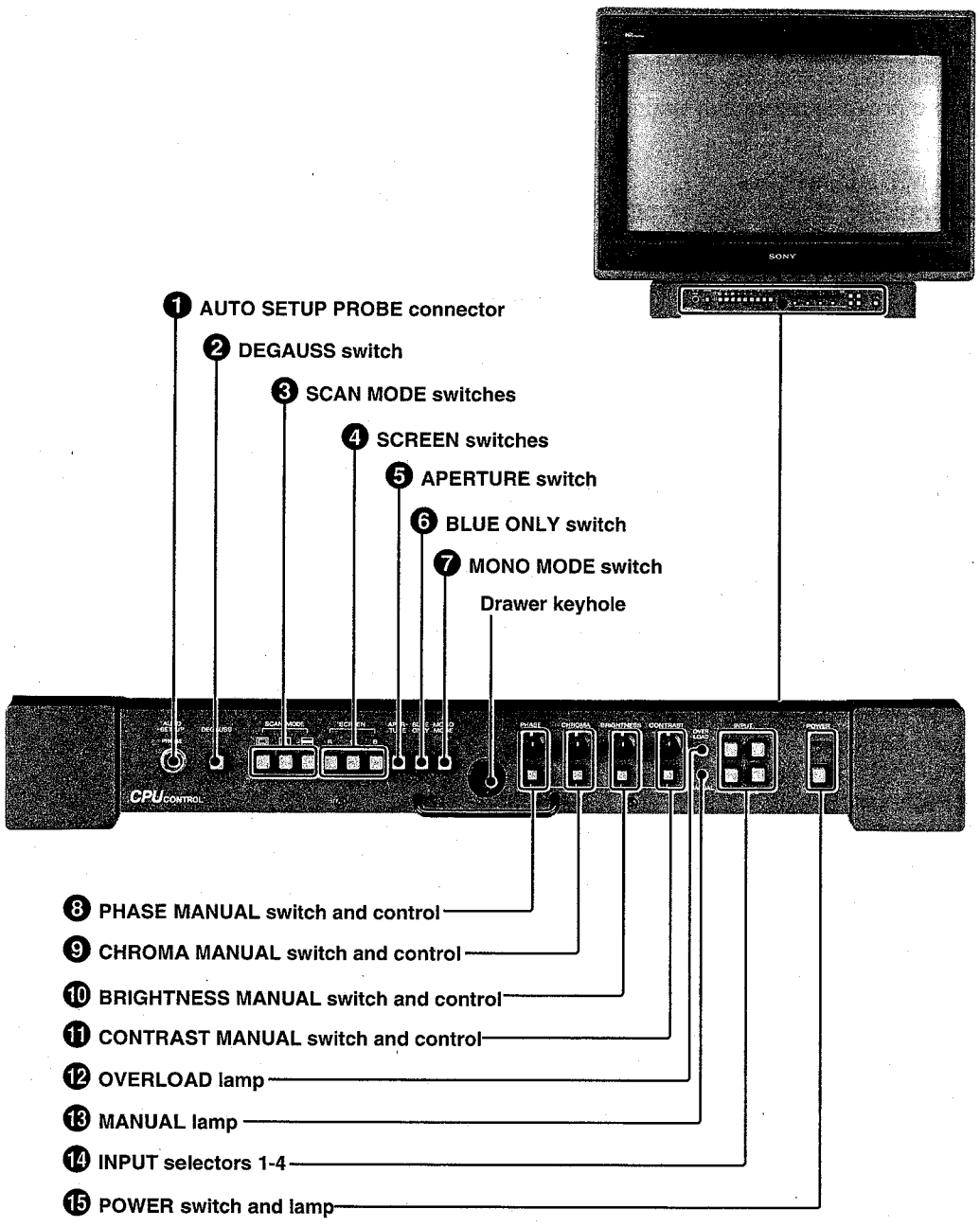
Voltage selector

Note

Use a 4A/125 V fuse for the BVM-2811 (100-120 VAC) and a T2A/250V fuse for the BVM-3011P (220-240 V AC). The appropriate fuse is installed at the factory in accordance with the voltage presetting.

1-3. Location and Function of Parts

1-3-1. Front Panel


1 AUTO SETUP PROBE connector
2 DEGAUSS switch
3 SCAN MODE switches
4 SCREEN switches
5 APERTURE switch
6 BLUE ONLY switch
7 MONO MODE switch
Drawer keyhole
8 PHASE MANUAL switch and control
9 CHROMA MANUAL switch and control
10 BRIGHTNESS MANUAL switch and control
11 CONTRAST MANUAL switch and control
12 OVERLOAD lamp
13 MANUAL lamp
14 INPUT selectors 1-4
15 POWER switch and lamp

The photo shows the BVM-2811. The parts configuration is common to the BVM-3011P.

Front panel

❶ AUTO SETUP PROBE connector
Connect the optional BKM-2053 auto set-up probe for auto setup operations.

❷ DEGAUSS switch
When the power is turned on, automatic degaussing is activated.
To demagnetize the screen manually, press this switch momentarily with the power on.
When degaussing repeatedly, wait for 5 minutes or more before pressing the switch again.

❸ SCAN MODE switches
(underscan): Depress this switch for underscanning. The display size is reduced by approximately 3% so that four corners of the raster are visible.
(horizontal delay): Depress this switch to observe the horizontal sync signal in the left quarter of the screen. Picture brightness is automatically increased for easy observation.
(vertical delay): Depress this switch to observe the vertical sync signal. The picture is shifted vertically and the vertical sync signal is displayed near the center of the screen. Picture brightness is automatically increased for easy observation.
- A pulse cross is displayed by depressing both the and switches.
- To resume normal scanning, press to release the depressed switches.

❹ SCREEN switches
The R, G and B switches turn the red, green and blue beams respectively on and off. To turn off the beam, depress the switch. To turn it on again, press to release it.

❺ APERTURE switch
Normally keep this switch released. A flat frequency response is obtained.
For aperture correction, depress this switch and adjust the APERTURE control inside the drawer. The boost frequency, 4.5 MHz or 6.5 MHz, can be selected with the aperture selector (S1) on the internal BG board.
With the S1 selector set at the 4.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 4.5 MHz for subjective enhancement of the displayed picture.
With the S1 selector set to the 6.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 6.5 MHz for compensation of aperture loss of the CRT.

❻ BLUE ONLY switch
Normally keep this switch released. Depress this switch to turn off the red and green signals. A blue signal is displayed as an apparent monochrome picture on the screen. This facilitates CHROMA and PHASE control adjustments and observation of VTR noise.

❼ MONO MODE switch
Normally keep this switch released (AUTO mode). Color or monochrome mode is automatically selected according to the presence or absence of color burst.
Depress the switch to display color pictures in monochrome (MONO mode).

❽ PHASE MANUAL switch and control
When this switch is in the released position, the subcarrier phase preset with the PRESETS menu operation is obtained.
To adjust the subcarrier phase manually, depress the switch and turn the control.
See "1-4-3. Presetting the Picture Levels."

Note
The PHASE MANUAL switch and control are disabled when the SECAM system is selected (the SECAM lamp is lit) with the SYSTEM button in the drawer, or the PAL system is selected (PAL lamp is lit) with selecting PAL D mode (the PAL S/SECAM F/COMB S lamp is not lit).

❾ CHROMA MANUAL switch and control
When this switch is in the released position, the color saturation preset with the PRESETS menu operation is obtained.
To adjust the color saturation manually, depress the switch and turn the control.
See "1-4-3. Presetting the Picture Levels."

❿ BRIGHTNESS MANUAL switch and control
When this switch is in the released position, the brightness preset with the PRESETS menu operation is obtained.
To adjust the brightness manually, depress the switch and turn the control.
See "1-4-3. Presetting the Picture Levels."

⓫ CONTRAST MANUAL switch and control
When this switch is in the released position, the contrast preset with the PRESETS menu operation is obtained.
To adjust the contrast manually, depress the switch and turn the control.
See "1-4-3. Presetting the Picture Levels."

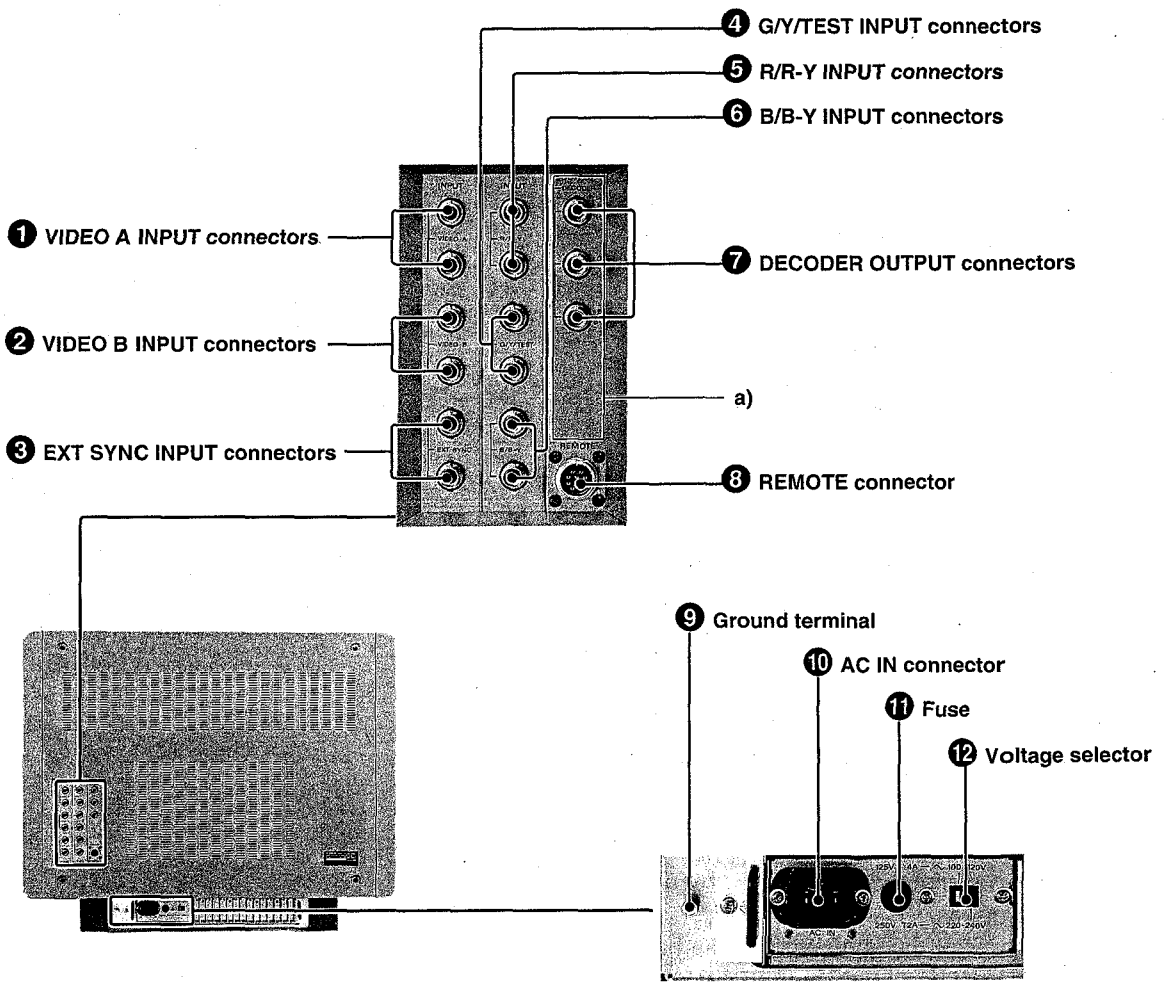
⓬ OVERLOAD lamp
Lights to warn of overloading of the CRT.

⓭ MANUAL lamp
Lights when any of the four MANUAL switches ❽ through ⓫ is depressed.

⓮ INPUT selectors 1 - 4
Select the input signal to be monitored by pressing one of these buttons.
The requirements of the input signals can be set with the CONFIGURATION buttons in the drawer and can be assigned independently to the selectors and stored in memory through the INPUT CONFIG menu operation.
See "1-4-2. Setting the Input Configuration."

⓯ POWER switch and lamp
Depress this switch to turn on the power. The lamp lights. To turn it off, press the switch again.

1-3-2. Rear Panel



a) The photo shows the BVM-3011P. This block is different on the BVM-2811. See page 1-12(E).

Rear panel

❶ VIDEO A INPUT connectors (BNC)
❷ VIDEO B INPUT connectors (BNC)

Input composite video signals.
Use one connector of each pair for input and the other for loop-through output.
When the loop-through output is not used, attach a 75-ohm terminator.

❸ EXT SYNC INPUT (external sync input) connectors (BNC)

Input a sync signal.
Use one connector for input and the other for loop-through output.
When the loop-through output is not used, attach a 75-ohm terminator.

❹ G/Y/TEST INPUT connectors (BNC)
❺ R/R-Y INPUT connectors (BNC)
❻ B/B-Y INPUT connectors (BNC)
Input RGB video signals, component signals or a composite test signal. The signal format can be selected with the FORMAT button in the drawer.
Use one connector of each pair for input and the other for loop-through output.
When the loop-through output is not used, attach a 75-ohm terminator.

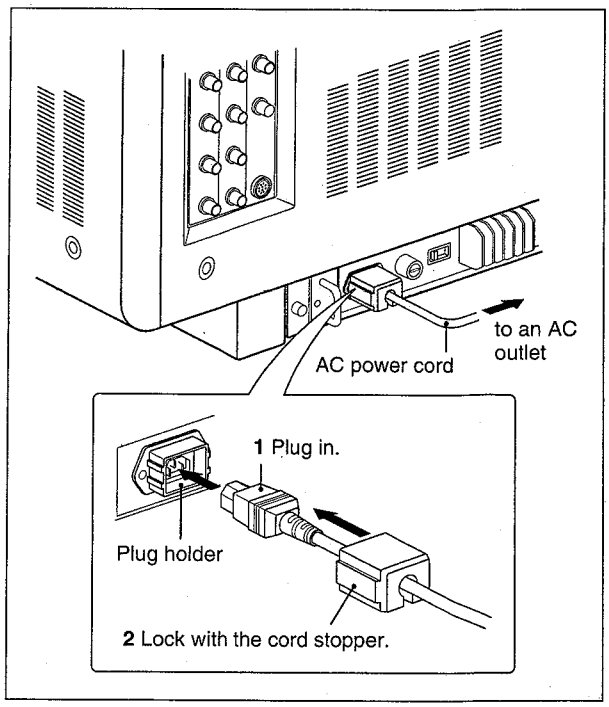
❼ DECODER OUTPUT connectors (BNC) (BVM-3011P only)
Output RGB or component (Y, R-Y, B-Y) outputs decoded from the composite (VIDEO A, VIDEO B or TEST) or component signals being displayed on the screen with the BKM-1440 RGB/component adaptor installed.
The RGB or component outputs are selected with the S1 selector on the BF board of the BKM-1440 kit.
To provide RGB output, set the S1 selector to the upper position.
To provide component output, set it to the lower position.

Notes
- The DECODER OUTPUT connectors do not provide the correct RGB outputs when RGB signals are displayed on the screen. To obtain the correct RGB outputs, use the loop-through outputs of the R, G and B INPUT connectors.
- The outputs obtained from noncomposite signals are also noncomposite. Supply a sync signal from the EXT SYNC INPUT connector when required.
- The output signals are affected by the CHROMA, PHASE and APERTURE controls and MATRIX switch.
- The color killer circuit is not activated for output signals.

❽ REMOTE connector (10-pin)
Connect to an external control device using the supplied 10-pin connecter.
To enter remote control mode, press the LOCAL/REMOTE button in the drawer so that the associated lamp lights.
The input mode and the pin assignment can be set through the REMOTE menu operation.
See "1-4-6. Assigning the Remote Control Functions."

❾ Ground terminal
Connect to the system ground, when required.

❿ AC IN connector
Connect the supplied AC power cord here and secure it with the supplied cord stopper.



NOTICE
THIS NOTICE IS APPLICABLE FOR THE USA ONLY.
If shipped to the USA, use the UL LISTED power cord specified below for 220 - 240 V AC operation.

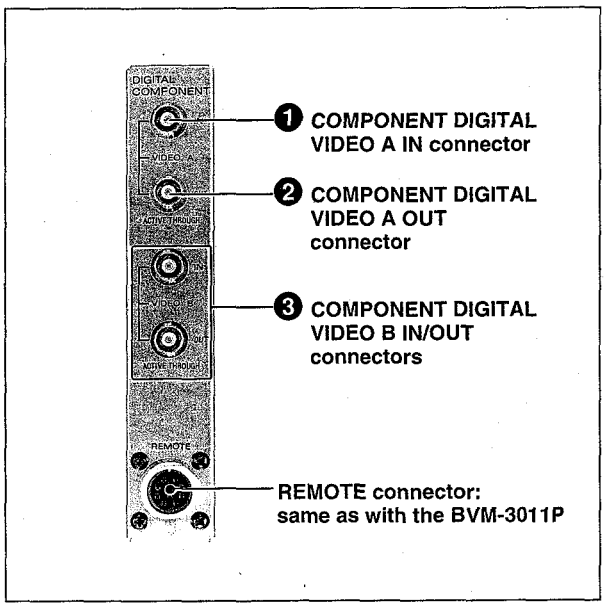
DO NOT USE ANY OTHER POWER CORD.

Plug cap	Tandem blade with ground pin
Cord	Type SJT, three 16 or 18 AWG Wires
Length	Maximum 15 feet
Rating	Minimum 10 A, 250 V AC

⓫ Fuse
Use a 4A fuse for the BVM-2811 or a T2A fuse for the BVM-3011P.

⓬ Voltage selector
Set to 100-120 V AC for the BVM-2811 or 220-240 V AC for the BVM-3011P.

Connectors available only on the BVM-2811



❶ COMPONENT DIGITAL VIDEO A IN connector (BNC)

Inputs a D-1 format serial video signal using a coaxial cable.

❷ COMPONENT DIGITAL VIDEO A OUT connector (BNC)

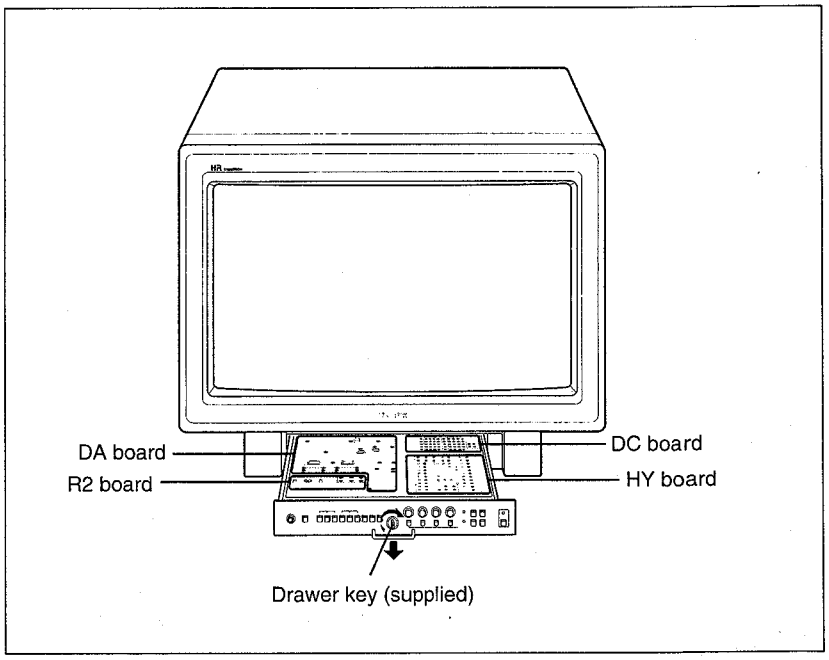
Outputs active-through output signal (signal which is compensated for signal deterioration due to cable loss, etc.) of the signal supplied to the VIDEO A IN connector.
As this active-through output is driven by the power of this monitor, the signal is not output when the power is off.

❸ COMPONENT DIGITAL VIDEO B IN/ OUT connectors (BNC)

These are another set of the input and the active-through output of a D-1 format serial video signal.

1-3-3. Subcontrol Panels inside the Drawer

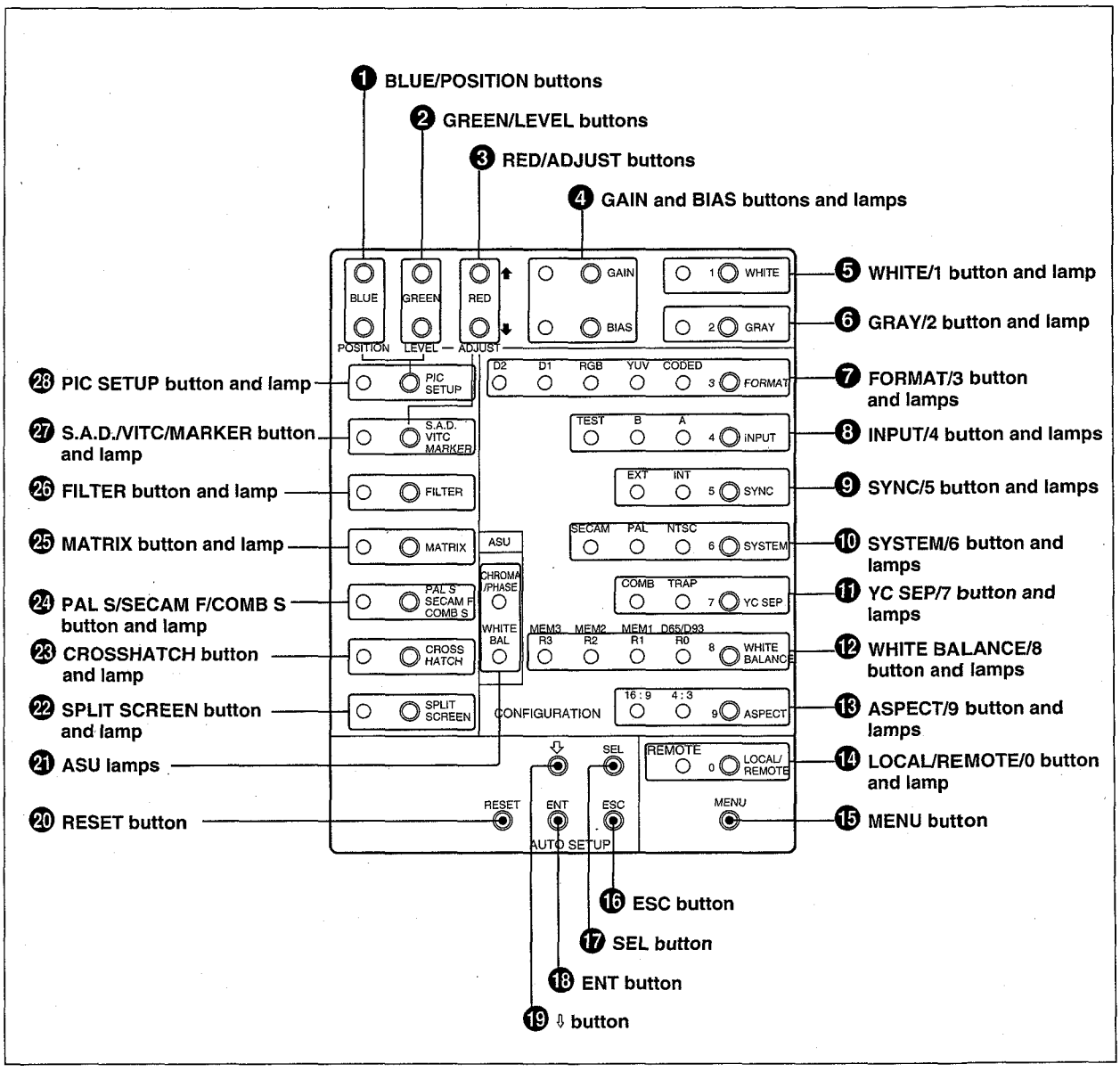
Insert the supplied drawer key into the keyhole of the drawer lock, turn it 90° clockwise and pull the drawer out.
Adjust the button and controls on the subcontrol panels when the monitor is fully warmed up. Warm-up time will be at least 30 minutes after the power has been turned on.



Subcontrol panels

For turning the controls on the DA, DC and R2 boards, use the supplied screwdriver.

HY board (input configuration, menu and auto setup operation section)



HY board

❶ BLUE/POSITION buttons

When adjusting white balance (the GAIN or BIAS lamp is lit), use these buttons to adjust the blue signal.

When adjusting the black level (the PIC SETUP lamp is lit), use them to adjust the position of the input signal checking zone.

❷ GREEN/LEVEL buttons

When adjusting white balance (the GAIN or BIAS lamp is lit), use these buttons to adjust the green signal.

When adjusting the black level (the PIC SETUP lamp is lit), use them to adjust the brightness of the black reference area.

❸ RED/ADJUST buttons

When adjusting white balance (the GAIN or BIAS lamp is lit), use these buttons to adjust the red signal.
When the safe area is displayed (the S.A.D./VITC/ MARKER lamp is lit), use them to adjust the safe area size. When the VITC is displayed, use them to control the VITC hold function.

❹ GAIN and BIAS buttons and lamps

When adjusting the white balance, select the adjustment items.
BIAS: Adjust the white balance at the lowlight and brightness of the screen.
GAIN: Adjust the white balance at the highlight and contrast of the screen.
For the adjustments, use the BLUE/POSITION, GREEN/LEVEL and RED/ADJUST buttons.

❺ WHITE/1 button[1] and lamp

When adjusting the white balance at the highlight, or when adjusting the beam landing, press this button so that the lamp lights. The internal 100% white signal is displayed on the screen. To turn off the signal, press the button again.

❻ GRAY/2 button[1] and lamp

When adjusting the white balance at the lowlight, press this button so that the lamp lights. The internal gray signal is displayed on the screen. To turn off the signal, press the button again.

❼ FORMAT/3 button[1] and lamps

Select the signal format according to the signal to be monitored. Press this button so that the lamp of the appropriate format lights.
CODED: For monitoring NTSC, PAL or SECAM signal with the decoder board (BC, BD, BE or BM) installed.
YUV: For monitoring Y/R-Y/B-Y component signals.
RGB: For monitoring RGB signals.
D-1: For monitoring D-1 format component signals (effective only when the BKM-2085-20 is installed).
D-2: For monitoring a D-2 format composite signal (effective only when the BKM-2090-20 is installed).

❽ INPUT/4 button[1] and lamps

When monitoring a composite signal, select the input connector.
Press this button so that the lamp of the appropriate connector lights.
A: For monitoring the signal connected to the VIDEO A INPUT connector.
B: For monitoring the signal connected to the VIDEO B INPUT connector.
TEST: For monitoring the test signal connected to the G/Y/TEST connector.

❾ SYNC/5 button[1] and lamps

Select the sync mode. Press this button so that the lamp of the appropriate mode lights.
INT (internal sync mode): The unit operates in synchronization with the sync signal of the composite signal being displayed on the screen.
EXT (external sync mode): The unit operates in synchronization with the sync signal supplied from the EXT SYNC INPUT connector.

❿ SYSTEM/6 button[1] and lamps

When monitoring a composite signal or a signal decoded with a decoder board (BC, BD, BE or BM), select the color system according to the signal to be monitored. Press this button so that the lamp of the appropriate system lights.
NTSC: For monitoring a signal of the NTSC color system.
PAL: For monitoring a signal of the PAL color system.
SECAM: For monitoring a signal of the SECAM color system.

Note

If the decoder board for the selected color system has not been installed:
- The picture does not appear when the FILTER lamp is lit (FILTER ON).
- The picture is displayed in monochrome when the FILTER lamp is not lit (FILTER OFF).

1) These buttons also function as numeric keys when specifying the password.
See "1-4-5. Changing and Applying the Password."

⓫ YC SEP(Y/C separation filter)/7 button[1] and lamps

For NTSC or PAL signal, select the filter to be used for Y/C separation. Press the button so that the lamp of the appropriate filter lights.

COMB: To use the comb filter with the comb filter board (BT) installed.

TRAP: To use the built-in trap filter.

Note

When the appropriate comb filter board has not been installed, the trap filter is activated regardless of the setting with this button.

⓬ WHITE BALANCE/8 button[1] and lamps

Select the white balance and picture levels stored in the respective registers. Press this button so that the lamp of the appropriate register lights.

At the factory, the white balance for D65 has been stored in all the registers.

D65/D93 R0: To use the white balance and picture levels stored in register 0.

MEM 1 R1: To use the white balance and picture levels stored in register 1.

MEM 2 R2: To use the white balance and picture levels stored in register 2.

MEM 3 R3: To use the white balance and picture levels stored in register 3.

For details, see "1-4. Menu Operations."

⓭ASPECT/9 button[1] and lamps

Select the aspect ratio of the picture to be monitored. Press this button so that the lamp of the appropriate ratio lights.

16:9: For the 16:9 aspect.

4:3: For the 4:3 aspect

Note

In the 4:3-aspect mode, the picture on the screen will be underscanned by 3%.

⓮ LOCAL/REMOTE/0 button[1] and lamp

To enable the monitor to be controlled from an external control device connected to the REMOTE connector on the rear panel, press this button so that the lamp lights (REMOTE mode). To disable the remote control (LOCAL mode), press the button again.

For the remote control functions, see "1-4-6. Assigning the Remote Control Functions."

⓯ MENU button

Press to initiate menu operations. The initial menu is displayed.

⓰ ESC (escape) button

Press to quit menu or auto setup operations.

⓱ SEL (select) button

Press to set the monitor to color temperature selection mode in auto setup operations. In color analyzer mode, select the memory position of the probe connected to the AUTO SETUP PROBE connector.

For details, refer to the operation and maintenance manual of the BKM-2056 auto set-up adaptor.

⓲ ENT (enter) button

Press to proceed to the next step during menu or auto setup operation and save the data.

⓳ ⇩ (cursor) button

For selecting menu options displayed on the screen in menu or auto setup operations. Each time this button is pressed, the cursor moves downwards and, if at the bottom, jumps to the top.

⓴ RESET button

Press to reset an auto setup operation.

1) These buttons also function as numeric keys when specifying the password.
See "1-4-5. Changing and Applying the Password."

㉑ ASU (automatic setup) lamps

CHROMA/PHASE: Lights when the automatic chroma and phase adjustment is completed with AUTO CHROMA/PHASE in auto setup operations. The lamp goes off when MANUAL is selected on the SELECT MONITOR MEM menu in auto setup operations.

WHITE BAL: Lights when one of the color temperature to be transfered to the monitor by the auto white balance adjustment is selected on the SELECT MONITOR MEM menu in auto setup operations. When this lamp is lit, the color temperature selection on the SELECT MONITOR MEM menu can be performed using the WHITE BALANCE/8 button.

㉒ SPLIT SCREEN button and lamp

To display the lower half of the picture in monochrome mode, press this button so that the lamp lights. Press this button again to resume the normal picture.

㉓ CROSSHATCH button and lamp

To display the internal crosshatch pattern for convergence adjustment, press this button so that the lamp lights.
The crosshatch pattern is synchronized with the selected composite sync signal.
To turn off the pattern, press the button again.

㉔ PAL S/SECAM F/COMB S button and lamp

While monitoring a PAL signal, the demodulation mode of the the PAL system can be switched. When this button is pressed and the lamp lights, S (simple) mode is selected. By pressing the button to turn off the lamp, D (deluxe) mode is selected.

While monitoring a SECAM signal, the ID signal of the the SECAM system can be switched. When this button is pressed and the lamp lights, the F (field) signal is selected. By pressing the button to turn off the lamp, the L (line) signal is selected.

When the BKM-1412 NTSC comb filter is activated, the comb filter mode can be switched. When this button is pressed and the lamp lights, the S (simple) comb filter is selected. By pressing the button to turn off the lamp, the D (dynamic) comb filter is selected.

㉕ MATRIX button and lamp

Should normally be OFF (lamp not lit).
By pressing this button so that the lamp lights (ON), the matrix circuit is activated and the chromaticity of the displayed picture more closely approximates to that of "true" NTSC phosphors.
To turn off the matrix circuit, press the button again.

㉖ FILTER button and lamp

To activate the comb or trap filter (selected with the YC SEP button) in MONO mode (MONO MODE switch on the front panel depressed), press this button so that the lamp lights.
To deactivate the filter for a wider frequency range, press the button again.

Note

In AUTO mode (the MONO MODE switch released), the filter is always activated for color signals regardless of the setting with this button.

㉗ S.A.D. (safe area display)/VITC/MARKER button and lamp

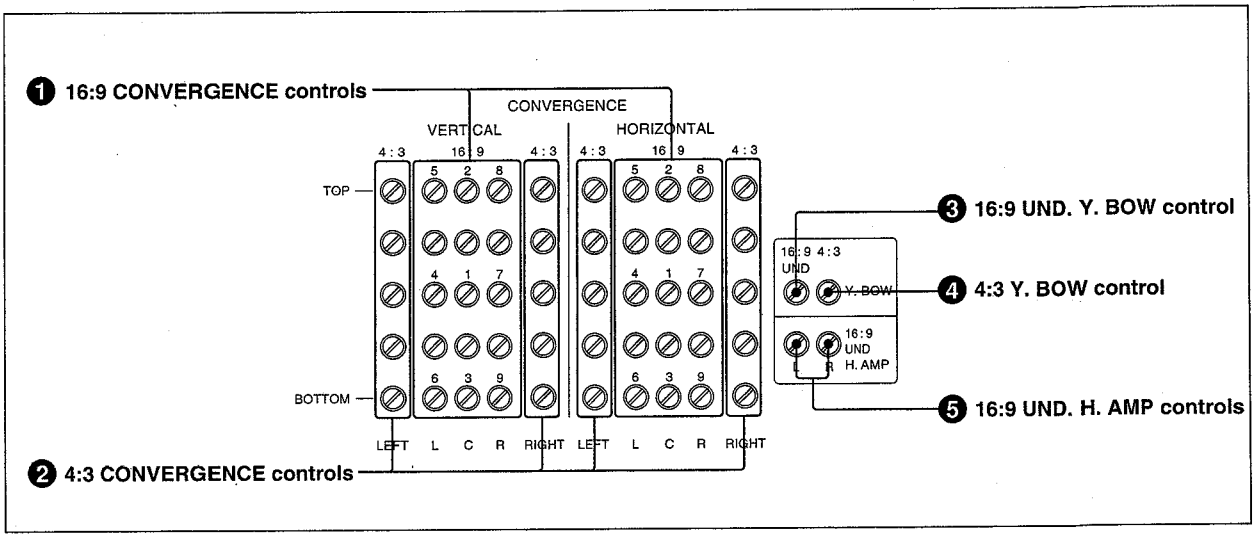
When the BQ board (BKM-1470 safe area display) is installed, the safe area display can be turned on and off.

When the BL board (BKM-1460 VITC adaptor) has been installed, the VITC display can be turned on and off.

㉘ PIC SETUP (picture setup) button and lamp

Use to match the black reference of the monitor with the black level of the input signal to be monitored.
By pressing this button so that the lamp lights, a vertical picture band and the black reference of the monitor are displayed on the screen for easy level comparison.
See "1-7-2. Black Level Adjustment."

DC board (Convergence adjustment section)



DC board

❶ 16:9 CONVERGENCE controls

Adjust the convergence of the 16:9-aspect normal picture. The VERTICAL controls adjust the convergence vertically and the HORIZONTAL controls adjust it horizontally. Fifteen controls cover the entire screen so that each control adjusts the corresponding portion of the screen.
See "1-6. Convergence Adjustments."

❷ 4:3 CONVERGENCE controls

Adjust the convergence of the 4:3-aspect picture at the right and left portions of the screen after adjusting it at the center of the picture using the C (center) column 16:9 CONVERGENCE controls. The VERTICAL controls adjust the convergence vertically and the HORIZONTAL controls adjust it horizontally.
See "1-6-3. Convergence of a 16:9-Aspect Picture."

❸ 16:9 UND. Y. BOW (underscan Y bow) control

Adjust the horizontal convergence at the top and bottom of the center of the 16:9-aspect underscanned picture.
See "1-6-2. Convergence of a 16:9-Aspect Underscanned Picture."

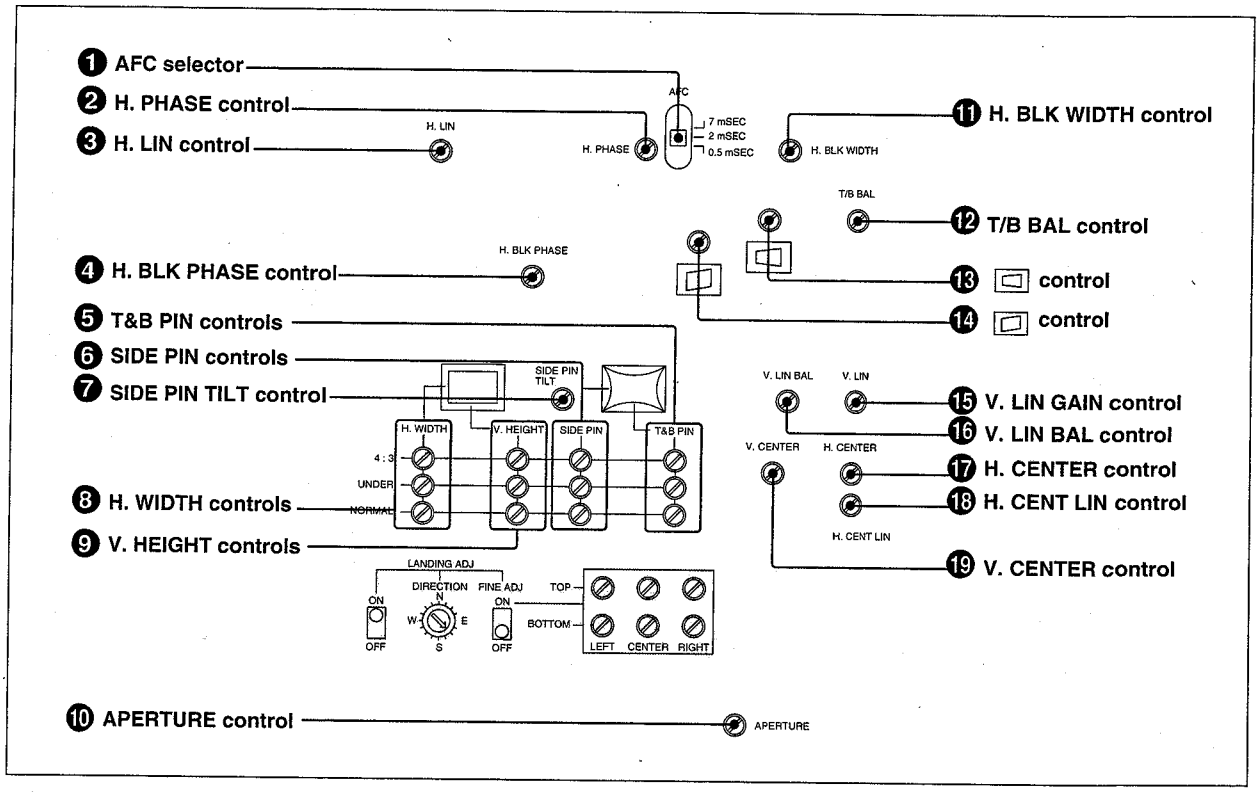
❹ 4:3 Y. BOW control

Adjust the horizontal convergence at the top and bottom of the center of the 4:3-aspect picture.
See "1-6-3. Convergence of a 4:3-Aspect Picture."

❺ 16:9 UND. H. AMP (underscan horizontal amplifier) controls

Adjust the horizontal convergence of the underscanned picture of the 16:9-aspect.
See "1-6-2. Convergence of a 16:9-Aspect Underscanned Picture."

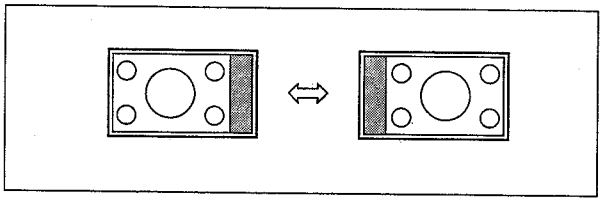
DA board (H.V. oscillator section)



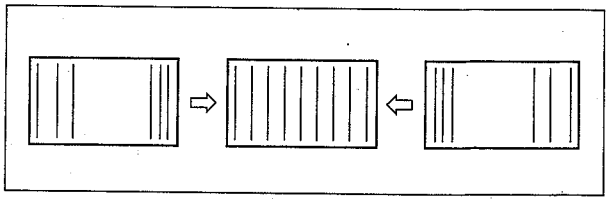
DA board

1 AFC (automatic frequency control) selector
Select the AFC time constant.
0.5 mSEC (fast): This mode is fast enough to compensate for VTR jitter. Set to this position to obtain a stable playback picture from a VTR.
2 mSEC (normal): Normally set to this position.
7 mSEC (slow): This mode is slow enough to display the time base instability introduced by mechanical jitter in the VTR playback signal.

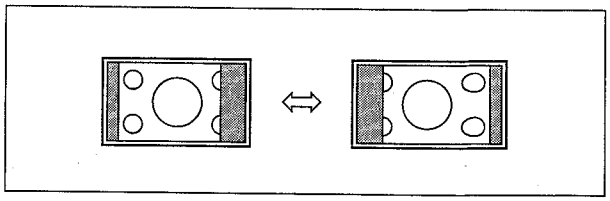
2 H. PHASE (horizontal phase) control
Adjust the horizontal position of the picture.



3 H. LIN (horizontal linearity) control
Adjust the horizontal linearity of the picture.



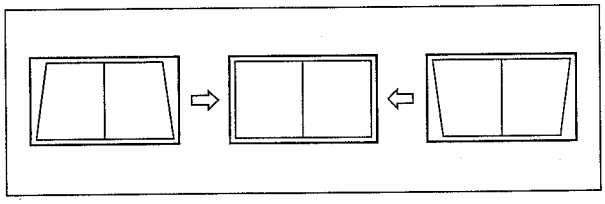
4 H. BLK PHASE (horizontal blanking phase) control
Adjust the phase of the horizontal blanking at both sides of the screen.



❺ T&B PIN (top and bottom pincushion) distortion controls
Correct the top and bottom pincushion distortion. Use the NORMAL control for the 16:9-aspect normal picture, the UNDER control for the 16:9-aspect underscanned picture and the 4:3 control for the 4:3-aspect picture.

❻ SIDE PIN (pincushion) controls
Correct the side pincushion distortion. Use the NORMAL control for the 16:9-aspect normal picture, the UNDER control for the 16:9-aspect underscanned picture and the 4:3 control for the 4:3-aspect picture.

❼ SIDE PIN TILT (side pincushion tilt) control
Adjust the phase of the side pincushion distortion.

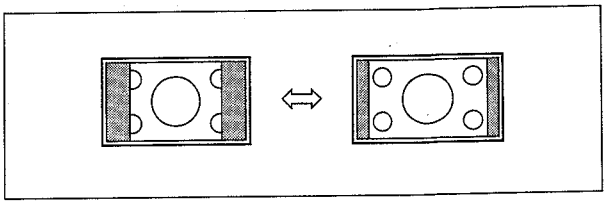


❽ H. WIDTH (horizontal width) controls
Adjust the horizontal width of the picture. Use the NORMAL control for the 16:9-aspect normal picture, the UNDER control for the 16:9-aspect underscanned picture and the 4:3 control for the 4:3-aspect picture.

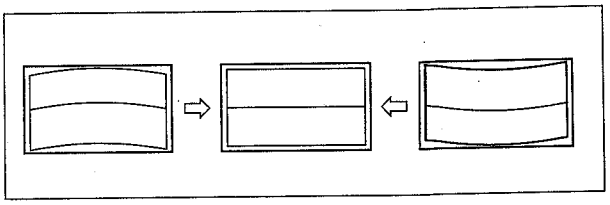
❾ V. HEIGHT (vertical height) controls
Adjust the height of the picture. Use the NORMAL control for the 16:9-aspect normal picture, the UNDER control for the 16:9-aspect underscanned picture and the 4:3 control for the 4:3-aspect picture.

❿ APERTURE control
Adjust the frequency response when the APERTURE switch on the front panel is depressed.

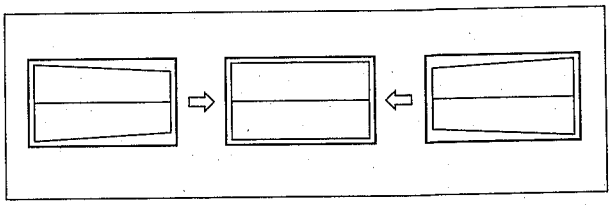
⓫ H. BLK WIDTH (horizontal blanking width) control
Adjust the width of the horizontal blanking.



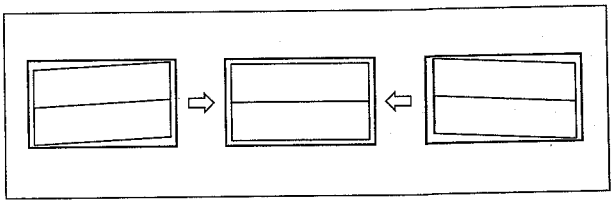
⓬ T/B BAL (top and bottom pincushion balance) control
Adjust the distortion at the center (X axis) of the picture.



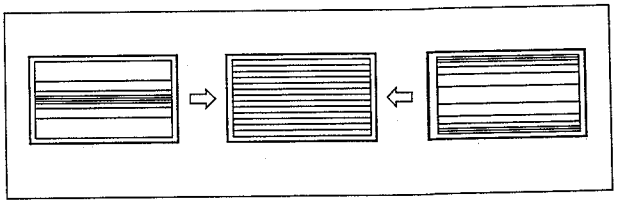
⓭ ▭ (trapezoid distortion) control
Correct the horizontal trapezoid distortion.



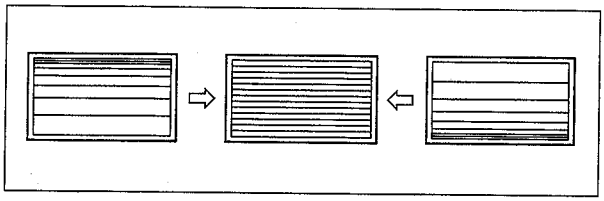
⓮ ▱ (parallelogram distortion) control
Correct the right angled distortion of the deflection yoke.



⓯ V. LIN (vertical linearity gain) control
Adjust the vertical linearity of the picture.

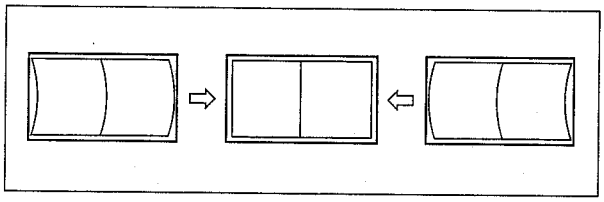


⑯ V. LIN BAL (vertical linearity balance) control
Adjust the balance of the vertical (Y axis) linearity of the picture.



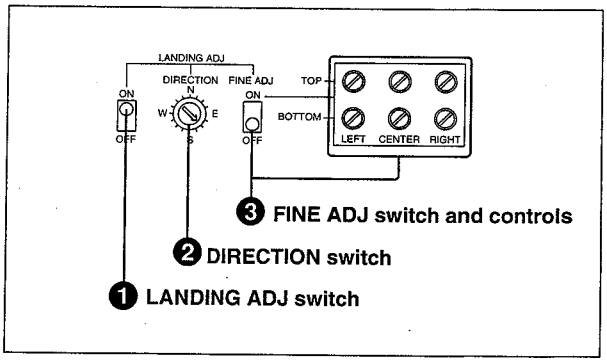
⑰ H. CENTER (horizontal centering) control
Adjust the horizontal position of the picture.

⑱ H. CENT LIN (horizontal centering linearity) control
Adjust the horizontal linearity at the center of the picture.



⑲ V. CENTER (vertical centering) control
Adjust the vertical position of the picture.

R2 Board (Beam landing correction section)



R2 board

❶ LANDING ADJ (landing adjustment) switch
Turns on and off the beam landing correction circuit. Normally set the switch to ON.

❷ DIRECTION switch
Activates when the LANDING ADJ switch is set to ON. To correct the beam mislanding caused by terrestrial magnetism and eliminate color impurity on the screen, set the arrow on the switch to the direction the picture tube faces.

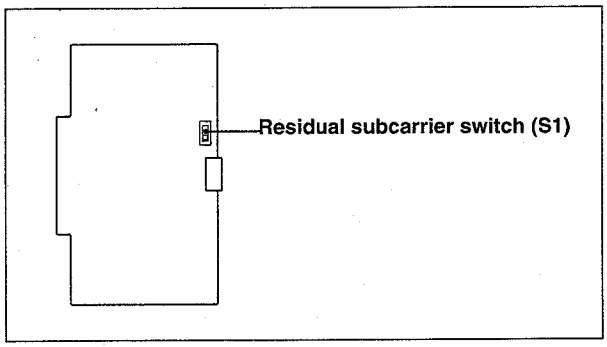
❸ FINE ADJ (fine-adjustment) switch and controls
Normally set the switch to OFF.
If color impurity on the screen cannot be completely eliminated through the adjustment with the DIRECTION switch, set this switch to ON and adjust the controls.
The indications of the six controls correspond to the portion of the screen.

See "1-5. Beam Landing Correction."

1-3-4. Switches inside the Cabinet

To access to the switches on the boards inside the cabinet, see Section 2.

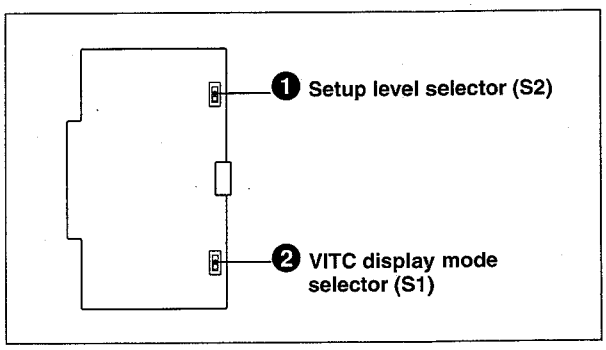
BJ board



BJ board

Residual subcarrier switch (S1)
This switch is factory-preset to the lower position (OFF).
Normally there will be no residual subcarrier in input video signals. However, if a residual subcarrier is present, this may affect the display. Set this switch to the upper position (ON) to check if a residual subcarrier is present. If it is present in the incoming signal, color shift appears in the picture.

BH board

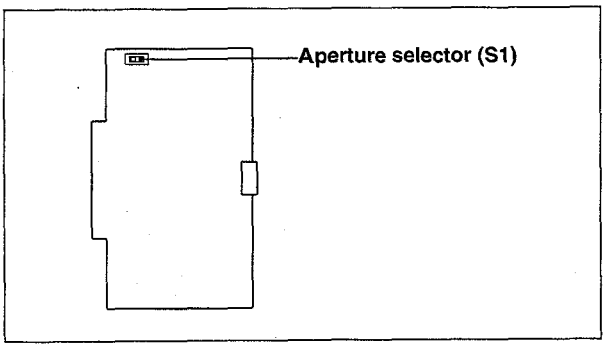


BH board

❶ Setup level selector (S2)
Select the setup level.
0 IRE: The setup level is 0%.
AUTO: Factory-preset position. The setup level set through the COMPONENT OFFSET or NTSC OFFSET option of the MONITOR CONFIG menu is obtained.
See "1-4-7. Defining the Monitor Configuration."
7.5 IRE: The setup level is 7.5%.
The 0% setup levels can be varied with the RV1 control and 7.5% level with the RV2 control in a range from –2.5% through +12.5%.

❷ VITC display mode selector (S1)
Use to invert the character and background colors for VITC display.
Upper position: Factory-preset position. The VITC is displayed in white characters on a black background.
Lower position: The VITC is displayed in black characters on a white background.
For details, see the operation and maintenance manual of the BKM-1460 VITC adaptor.

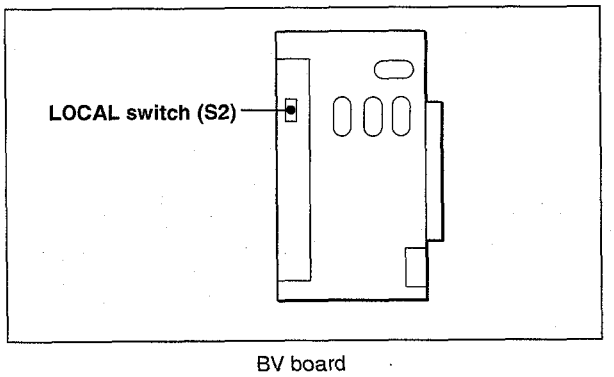
BG board



BG board

Aperture selector (S1)
Select the boost frequency, 4.5 MHz or 6.5 MHz, for aperture correction. This selector is factory-preset to 4.5 MHz.

BV board (BVM-2811 only)



BV board

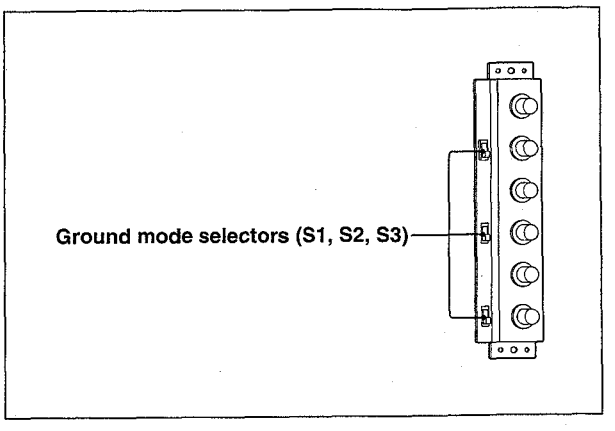
LOCAL switch (S2)
Set this switch to the color system to be used for monitoring digital video signals.
Upper position: NTSC
Center position: PAL
Lower position: SECAM (Factory-set position)

Note

The decoder board selected with this switch cannot be used simultaneously with the D-1 boards (BKM-2085-20).
When you change the setting of this switch, be sure to change the "D1 CONFIGURATION" setting of the MONITOR CONFIG menu to the same system.
See "1-4-7. Defining the Monitor Configuration."

QA and QB boards

The QA board is located behind the VIDEO A, VIDEO B and EXT SYNC INPUT connector panel and the QB board is located behind the R/R-Y, G/Y/TEST and B/B-Y INPUT connector panel. To access these boards, remove the INPUT connector panels, referring to Section 2.



QA and QB boards

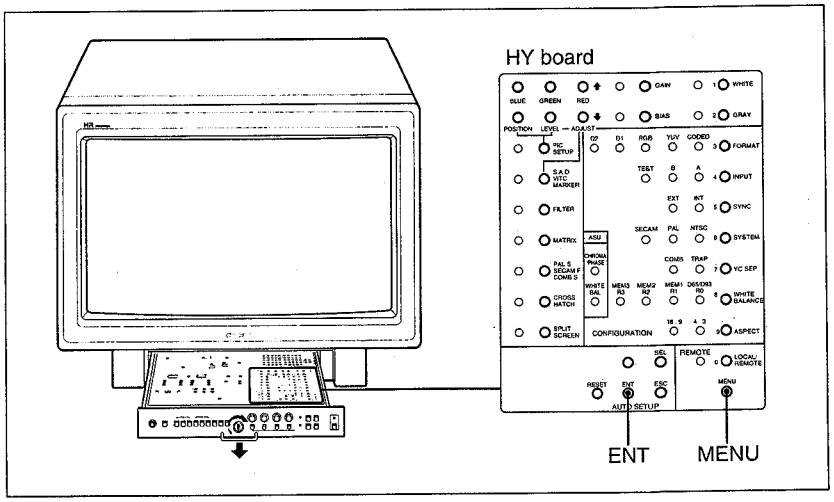
Ground mode selectors (S1, S2, S3)
The selectors on the QA board correspond to the VIDEO A, VIDEO B or EXT SYNC INPUT connectors and those on the QB board correspond to the R/R-Y, G/Y/TEST or B/B-Y connectors, respectively.
S (nonfloating): Factory-preset position. Normally keep the selectors at this position.
F (floating): When there is hum in the input signal to be monitored, set to this position. Common mode noise will be rejected.

1-4. Menu Operations

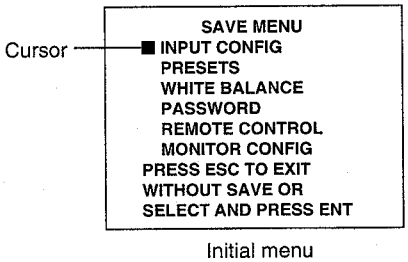
The menu operations permit the various monitor requirements to easily be set by following messages displayed on the screen.

1-4-1. Starting with the Menu Operations

For the menu operations, use the buttons on the HY board in the drawer and some switches and controls on the front panel.



Pressing the MENU button displays the following initial menu showing the items which can be set through the menu operations.



Initial menu

INPUT CONFIG (input configuration): To assign input signals to INPUT selectors 1 to 4 on the front panel.
PRESETS: To adjust the preset values for the phase, chroma, contrast, brightness, and picture setup (black reference) levels.
WHITE BALANCE: To adjust the white balance.
PASSWORD: To specify and activate/deactivate the password.
REMOTE CONTROL: To assign the remote control functions.
MONITOR CONFIG (monitor configuration): To specify operating conditions of the monitor, such as the optional boards to be used and signal setup levels, and to restore the factory-set menu data.

To select a menu option

Move the cursor with the D button to the line of the desired menu option and press the ENT button.
Pressing the D button moves the cursor downward and, if at the bottom, to the top.

To cancel the menu operation on the way

Press the ESC button.
At any level of the menu operations, pressing the ESC button cancels the operations without changing any data and restores normal status.

1-4-2. Setting the Input Configuration

At the factory, the following input signals are assigned to INPUT selectors 1 to 4 on the front panel.

Factory-set configuration for the BVM-2811

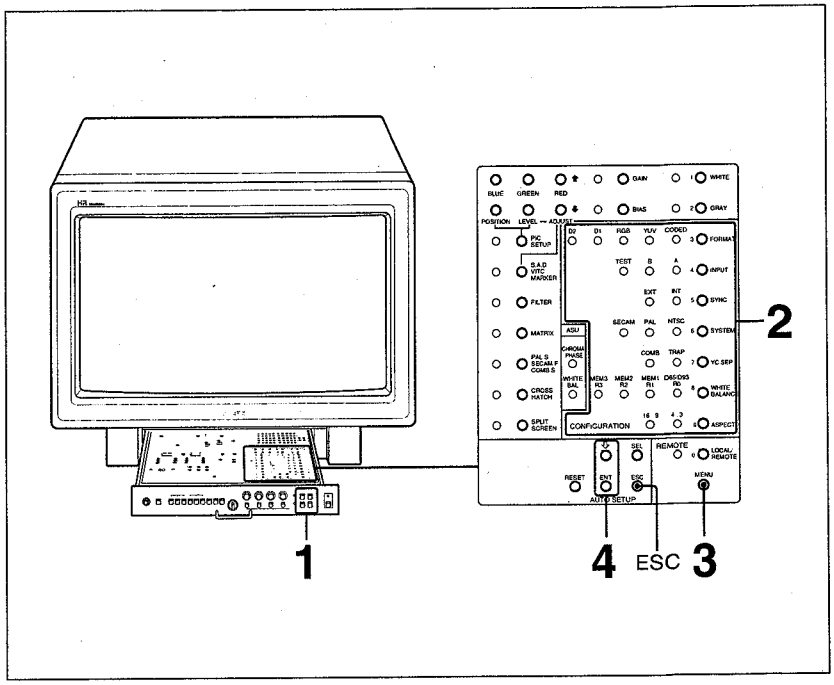
	INPUT selectors			
	1	2	3	4
FORMAT	D-1	D-1	YUV	CODED
INPUT	A	B	—	A
SYNC	INT	INT	INT	INT
SYSTEM	—	—	—	NTSC
ASPECT	16 : 9	16 : 9	16 : 9	16 : 9
YC SEP	—	—	—	COMB

Factory-set configuration for the BVM-3011P

	INPUT selectors			
	1	2	3	4
FORMAT	CODED	CODED	COMPONENT	RGB
INPUT	A	B	—	—
SYNC	INT	INT	INT	INT
SYSTEM	PAL	PAL	—	—
ASPECT	16 : 9	16 : 9	16 : 9	16 : 9
YC SEP	TRAP	TRAP	—	—

Using the CONFIGURATION buttons on the HY board in the drawer, these requirements of the input signals (input configuration) can be changed as desired and stored in memory through the INPUT CONFIG menu operation. The stored configuration is always obtained when the assigned INPUT selector is pressed. When the change is not stored through the menu operation, the input configuration returns to the previous status when another INPUT selector is pressed.

Operation



1 Press one of the INPUT selectors on the front panel.

2 Using the following COFIGURATION buttons in the drawer, set the input configuration for the INPUT selector selected in step 1. Press the buttons so that the appropriate lamps light.

FORMAT[1]**:** Select the signal format (CODED, YUV, RGB, D-1 or D-2).
INPUT: Select the input connector A, B or TEST when you select CODED for FORMAT, or A or B when you select D-1 or D-2 for FORMAT.
SYNC: Select the sync mode (INT or EXT).
SYSTEM[1]**:** Select the color system (NTSC, PAL or SECAM) when you select CODED or D-2 for FORMAT.
YC SEP[1]**:** Select the filter when you select NTSC or PAL for the color system.
WHITE BALANCE: Select the register (R0, R1, R2 or R3) on which the desired white balance has been stored.
See "1-4-4. Selecting the White Balance."
ASPECT: Select the picture aspect (4:3 or 16:9).

1) For these menu items, you can select only the options for which the corresponding internal boards have been set to YES in OPTION INSTALLATION of the MONITOR CONFIG menu.
See "1-4-7. Defining the Monitor Configuration."

3 When the settings are completed, press the MENU button.
The initial menu is displayed.

4 Should the cursor on the initial menu not be located at INPUT CONFIG, press the D button until it returns to INPUT CONFIG, and press the ENT button.

Note

If the message "PLEASE ENTER PASSWORD" is displayed, enter the password.
See "1-4-5. Changing and Applying the Password."

The input configuration set in step 2 for the INPUT selector selected in step 1 is now stored in memory.
The message "DATA SAVED" is momentarily displayed and the monitor returns to normal status.

Repeat this procedure for the other INPUT selectors as desired.

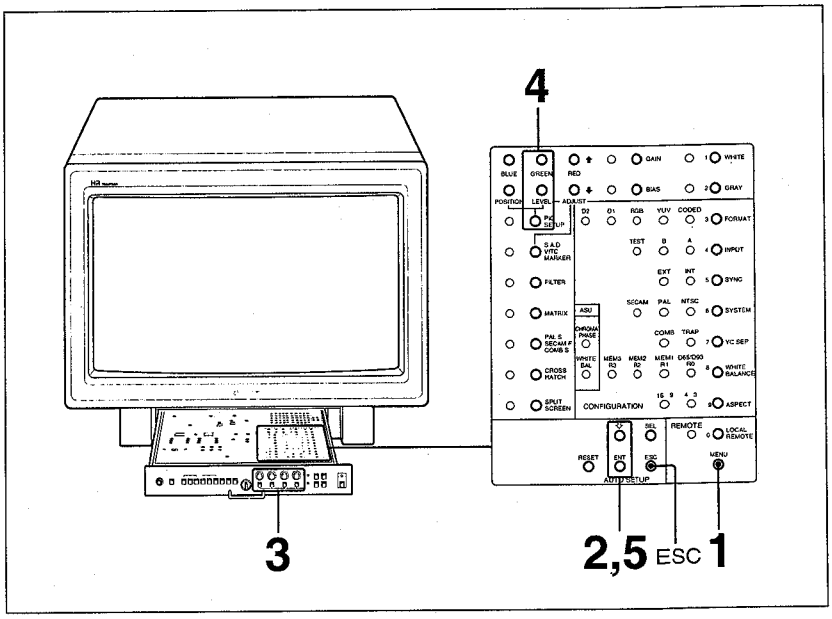
To cancel the operation

Press the ESC button before pressing the ENT button in step 4.

1-4-3. Presetting the Picture Levels

The four sets of the phase, chroma, brightness, contrast, and picture setup (black reference) levels can be set and stored in Registers R0 to R3 through the PRESETS menu operation.

Operation



1 Press the MENU button.
The initial menu is displayed.

2 Press the D button until the cursor reaches PRESETS, then press the ENT button.
The SAVE PRESETS menu is displayed.

```
        SAVE PRESETS
  ■TEXT ON/OFF
    DATA REGISTER  R0 *
    DATA REGISTER  R1
    DATA REGISTER  R2
    DATA REGISTER  R3
PHASE    100  BRIGHT    100
CHROMA   100  CONTRAST  100
  PICTURE SETUP LEVEL  100
  SELECT AND PRESS ENT
```

An asterisk indicates the register which is currently selected with the WHITE BALANCE button. The levels stored in this register are displayed as numerical values on the lower half of the menu display.

Note

If the message "PLEASE ENTER PASSWORD" is displayed, enter the password.
See "1-4-5. Changing and Applying the Password."

3 Depress the PHASE, CHROMA, BRIGHTNESS and CONTRAST MANUAL switches and turn the respective controls so that the desired levels are obtained.

4 Press the PIC SETUP button so that the associated lamp lights and adjust the setup level for the picture by pressing the LEVEL buttons.

Note

The adjustments in steps 3 and 4 can be precisely performed while observing the numeric level indications (0 through 200, centering with 100) on the lower half of the menu display.
To adjust while observing the picture on the screen, set the cursor to TEXT ON/OFF and press the ENT button, and the SAVE PRESETS menu disappears.
For the picture setup level, follow the procedure in "1-7-2. Black Level Adjustment."
To return to the SAVE PRESETS menu, press the ENT button again.

5 Move the cursor to the register in which the set levels are to be stored and press the ENT button.

The levels set in steps 3 and 4 are now stored in the register selected in step 5.
The message "DATA SAVED" is momentarily displayed, and the monitor returns to normal status.

Repeat this procedure for the other registers as desired.

To cancel the operation
Press the ESC button before pressing the ENT button in step 5.

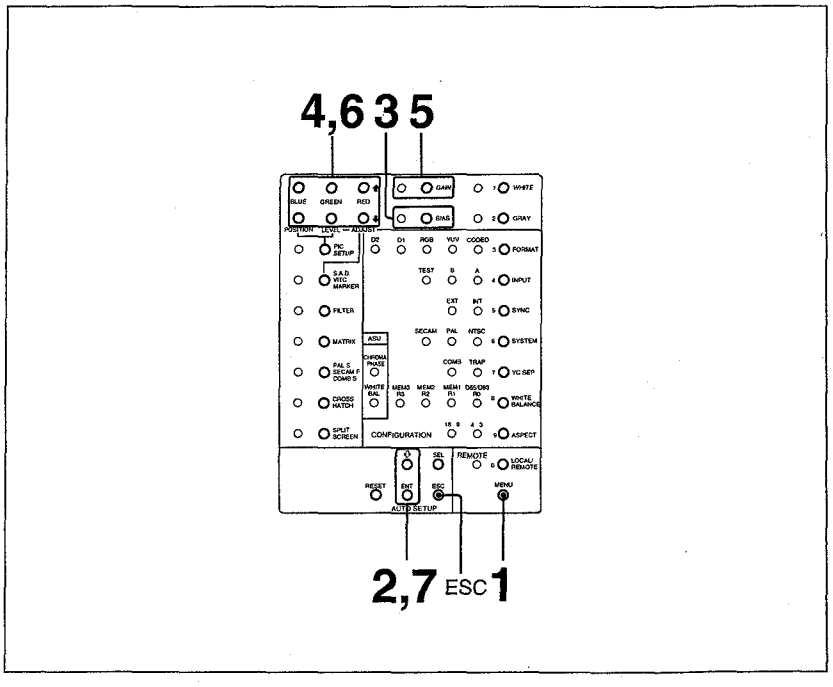
1-4-4. Selecting the White Balance

The four settings for white balance can be stored in Registers R0 to R3. At the factory, the setting for D65 has been stored in all the registers

Note

The settings for white balance are stored in combination with the picture levels set through the PRESETS menu operation in the same Registers R0 through R3.

Operation



1 Press the MENU button.
The initial menu is displayed.

2 Press the D button until the cursor reaches WHITE BALANCE, then press the ENT button.
The SAVE WHITE BALANCE menu is displayed.

```
SAVE WHITE BALANCE
■TEXT ON/OFF
 DATA REGISTER R0*
 DATA REGISTER R1
 DATA REGISTER R2
 DATA REGISTER R3
R: - GAIN  100    BIAS  100
G: - GAIN  100    BIAS  100
B: - GAIN  100    BIAS  100
SELECT AND PRESS ENT
```

An asterisk indicates the register which is currently selected with the WHITE BALANCE button. The levels stored in this register are displayed as numerical values on the lower half of the menu display.

Note

If the message "PLEASE ENTER PASSWORD" is displayed, enter the password.

See "1-4-5. Changing and Applying the Password."

3 Press the BIAS button.
The associated lamp lights.

4 Adjust the R, G and B bias levels by pressing the RED, GREEN and BLUE buttons.

5 Press the GAIN button.
The associated lamp lights.

6 Adjust the R, G and B signal gain levels by pressing the RED, GREEN and BLUE buttons.

Note

These adjustments in steps 3 through 6 can be precisely performed while observing the numeric level indications (0 through 200, centering with 100) on the lower half of the menu display.
To adjust while observing the picture on the screen, set the cursor to TEXT ON/OFF and press the ENT button, and the SAVE WHITE BALANCE menu disappears.
Then, adjust the white balance by following the procedure in "1-7-1. White Balance Adjustment."
To return to the SAVE WHITE BALANCE menu, press the ENT button again.

7 Move the cursor to the register in which the set white balance is to be stored and press the ENT button.

The white balance set in steps 3 through 6 is now stored in the register selected in step 7.
The message "DATA SAVED" is momentarily displayed, and the monitor returns to normal status.

Repeat the above procedure for the other registers as desired.

To cancel the operation
Press the ESC button before pressing the ENT button in step 7.

1-4-5. Changing and Applying the Password

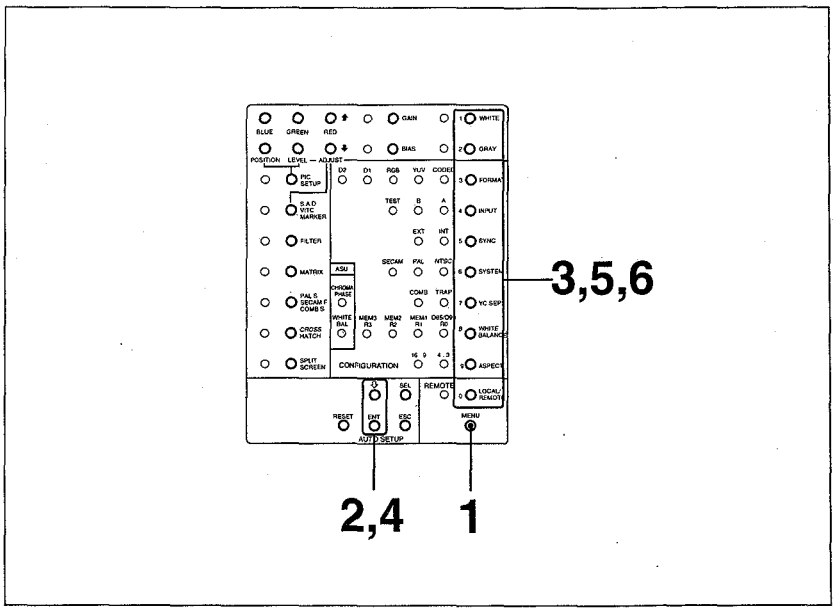
The password can be specified and applied to the desired menu option to prohibit the menu settings from being changed without permission. The password can be any desired four-digit number, which is entered by using the function buttons having additional numeric indications on the HY board.

The message **"PLEASE ENTER PASSWORD"** is displayed when you try to select the options for which the password has been applied, from the initial menu.

If an incorrect password is entered or the password is not entered within about 5 seconds after the above message is displayed, the message **"INCORRECT ENTRY"** is momentarily displayed and the menu operation is canceled.

To change the password

"9999" has been specified for the password at the factory. Change it to your desired four-digit number as follows.



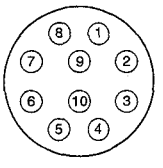
1 Press the MENU button.
The initial menu is displayed.

1-4-6. Assigning the Remote Control Functions

The remote control function is available either in STANDARD PARALLEL or CONFIGURE PARALLEL mode.
The mode change is achieved through the REMOTE CONTROL menu operation.
The SERIAL REMOTE option mode in the REMOTE CONTROL menu is provided for future use. If you inadvertently select it, cancel the REMOTE CONTROL menu by pressing the ESC button.

STANDARD PARALLEL mode

The remote control function is set to the STANDARD PARALLEL mode and the following functions are assigned to the pins of the REMOTE connector at the factory.



Pin assignment

Function			Pin No.						
INPUT	SYNC	MODE	1	2	3	4	5	6	7
A	INT	AUTO	O	O	–	O	–	–	–
		MONO	S	O	–	O	–	–	–
	EXT	AUTO	O	O	–	S	–	–	–
		MONO	S	O	–	S	–	–	–
B	INT	AUTO	O	S	–	O	–	–	–
		MONO	S	S	–	O	–	–	–
	EXT	AUTO	O	S	–	S	–	–	–
		MONO	S	S	–	S	–	–	–
VITC OFF			–	–	–	–	–	S	–
VITC HOLD			–	–	–	–	–	O	S
TALLY ON			–	–	S	–	–	–	–

S: Short-circuit with pin No.8
O: Open
–: Either S or O

The assigned function can be controlled by short-circuiting the corresponding pin with pin 8.
Note that pin 3 is fixed to TALLY and pin 8 is fixed to GND.

The remote control operations have priority over the respective buttons and switches of the monitor.

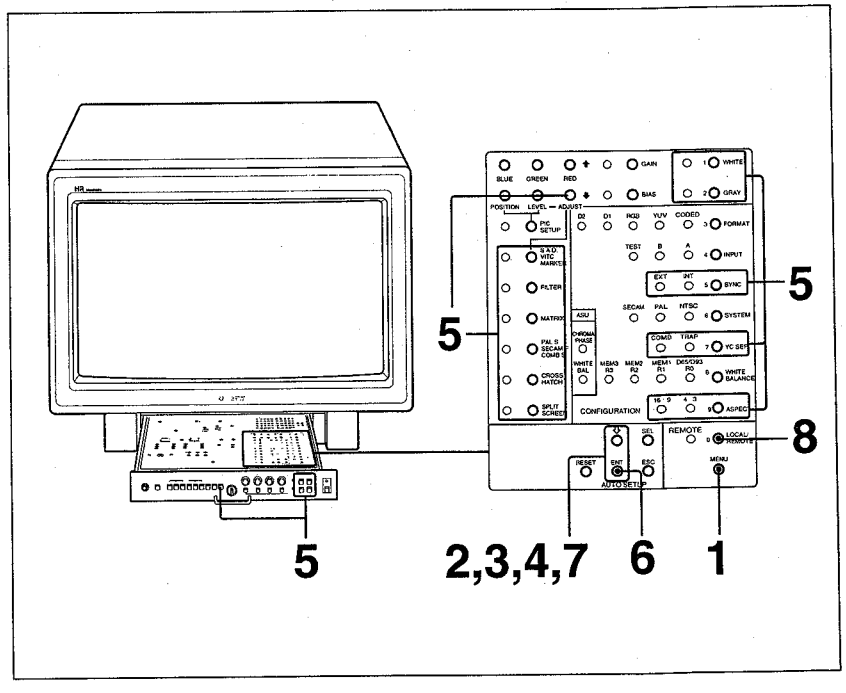
CONFIGURE PARALLEL mode

The functions of the buttons or switches on the front panel or in the drawer listed below can be assigned to pins 1, 2 and 4 through 7, as desired.

Front panel
INPUT selectors 2 to 4 (input selection)
MONO MODE switch (AUTO/MONO mode switching)

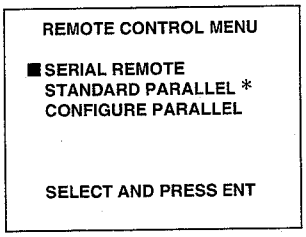
HY board inside the drawer
WHITE button (ON/OFF)
GRAY button (ON/OFF)
SYNC button (INT/EXT sync mode switching)
YC SEP button (COMB/TRAP filter switching)
ASPECT button (16:9/4:3 picture aspect switching)
S.A.D. /VITC/MARKER button (S.A.D. or VITC ON/OFF)
FILTER button (ON/OFF)
MATRIX button (ON/OFF)
PAL S/SECAM F/COMB S button (mode or type switching)
CROSSHATCH button (ON/OFF)
SPLIT SCREEN button (ON/OFF)
ADJUST button (S.A.D. size adjusting or VITC holding)

Operation



1 Press the MENU button to display the initial menu.

2 Move the cursor to REMOTE CONTROL and press the ENT button.
The REMOTE CONTROL MENU is displayed.



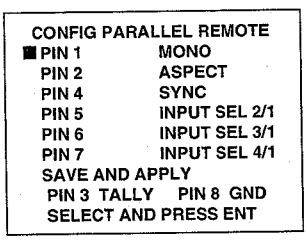
The asterisk indicates the current setting.
Note that SERIAL REMOTE is for future use.

3 **To change the pin assignment of the REMOTE connector,** move the cursor to CONFIGURE PARALLEL and press the ENT button.
To resume the factory-set pin assignment, move the cursor to STANDARD PARALLEL and press the ENT button. (For the factory-set pin assignment, see page 1-35(E).)

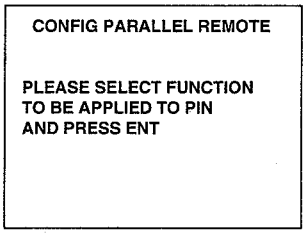
Note

When using STANDARD PARALLEL or CONFIGURE PARALLEL mode, the 8-pin connector must be connected to HY-4 of the HY board in the drawer. Although it must have been done at the factory, make sure that the connector is connected to HY-4 properly. If not, remove the connector from HY-2 and connect it to HY-4.

When STANDARD PARALLEL has been selected, the selected mode is now activated and the monitor returns to normal status.
When CONFIGURE PARALLEL has been selected, the CONFIG PARALLEL REMOTE menu is displayed.


CONFIG PARALLEL REMOTE
■PIN 1 MONO
PIN 2 ASPECT
PIN 4 SYNC
PIN 5 INPUT SEL 2/1
PIN 6 INPUT SEL 3/1
PIN 7 INPUT SEL 4/1
SAVE AND APPLY
PIN 3 TALLY PIN 8 GND
SELECT AND PRESS ENT

4 Move the cursor with the ⇩ button to the pin whose assignment is to be changed, then press the ENT button.
The following message appears.



5 Press the button on the front panel or in the drawer (listed on page 1-36(E)) whose function is to be assigned to the pin selected in step 4.

6 Press the ENT button.

Repeat steps 4, 5 and 6 for the other pins as desired.

7 When the pin assignment is completed, move the cursor to SAVE AND APPLY and press the ENT button.
The massage "DATA SAVED" is momentarily displayed, and the monitor returns to normal status.

8 Press the LOCAL/REMOTE button so that the REMOTE lamp lights, setting the monitor to the remote control mode.

To cancel the operation
Press the ESC button before pressing the ENT button in step 7.

Notes

- When the INPUT selector 2, 3 or 4 is assigned to one of the REMOTE connector pins through CONFIGURE PARALLEL, the input signal for the assigned INPUT selector is selected by short-circuiting the pin to GND. In open status, the input signal of the INPUT selector 1 is selected.
- When two or more INPUT selectors are assigned to the REMOTE connector pins, be sure not to simultaneously short-circuit these pins to GND.

1-4-7. Defining the Monitor Configuration

In MONITOR CONFIG menu operation, the following operating conditions of the monitor can be defined.

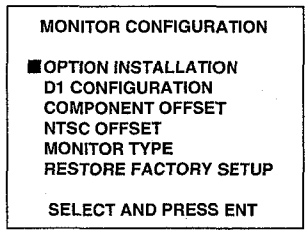
OPTION INSTALLATION: To specify the installed optional boards.
D1 CONFIGURATION: To specify the system in which D-1 signals are to be received.
COMPONENT OFFSET: To set the setup level for component signals
NTSC OFFSET: To set the setup level for NTSC signals.
MONITOR TYPE: To define the model of your monitor.

In addition, all the menu options you changed can be reset to the factory-set conditions using the **RESTORE FACTORY SETUP** option.

To start with the MONITOR CONFIG menu operation

1 Press the MENU button to display the initial menu.

2 Press the ⇩ button until the cursor reaches MONITOR CONFIG, then press the ENT button.
The MONITOR CONFIGURATION menu is displayed.



To specify the installed optional boards

1 Set the cursor to OPTION INSTALLATION on the MONITOR CONFIGURATION menu and press the ENT button.
The OPTION INSTALLATION menu 1 is displayed.

BVM-2811

```
OPTION INSTALLATION 1
■AUTO SETUP          NO
 D1 OPTION           YES
 D2 OPTION           NO
 NTSC DECODER        YES
 NTSC COMB ADP       YES
 PAL DECODER         NO
 PAL COMB ADP        NO
 OTHER OPTIONS
  SELECT AND PRESS ENT
```

BVM-3011P

```
OPTION INSTALLATION 1
■AUTO SETUP          NO
 D1 OPTION           NO
 D2 OPTION           NO
 NTSC DECODER        NO
 NTSC COMB ADP       NO
 PAL DECODER         YES
 PAL COMB ADP        NO
 OTHER OPTIONS
  SELECT AND PRESS ENT
```

2 By pressing the ⇩ button, move the cursor to the board for which the YES/NO setting must be changed, and press the ENT button.
YES must be displayed for the installed board and NO for uninstalled boards. Pressing the ENT button toggles the YES/NO setting.

Repeat step 2 for the other boards as necessary.

3 Move the cursor to OTHER OPTIONS and press the ENT button.
The OPTION INSTALLATION menu 2 is displayed.

```
OPTION INSTALLATION 2
■PAL-M DECODER       NO
 SECAM DECODER       NO
 RGB/COMP O/P        NO
 VITC BOARD          NO
 SAFE AREA           NO
 BLACK GENER         NO
 OTHER OPTIONS
 SAVE AND APPLY
  SELECT AND PRESS ENT
```

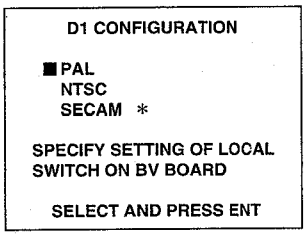
4 Set YES/NO for the boards listed in menu 2 in the same manner as with menu 1.

5 When the YES/NO setting is completed, move the cursor to SAVE AND APPLY and press the ENT button.
The message "DATA SAVED" is momentarily displayed and the monitor returns to normal status.

To specify the system in which D-1 signals are to be received

Before starting the following procedure, set D1 OPTION of the above OPTION INSTALLATION menu 1 to YES (factroy setting for the BVM-2811).

1 Move the cursor with the ⇩ button to D1 CONFIGURATION on the MONITOR CONFIGURATION menu and press the ENT button.
The D1 CONFIGURATION menu is displayed.



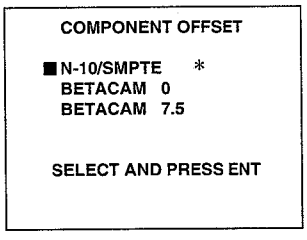
The asterisk indicates the current setting.
The factory setting for the BVM-2811 is SECAM.

2 Move the cursor with the ⇩ button to the system matching setting of the local switch on the BV board.

3 Press the ENT button.
The message "DATA SAVED" is momentarily displayed and the monitor returns to normal status.

To set the setup level for component signals

1 Move the cursor with the ⇩ button to COMPONENT OFFSET on the MONITOR CONFIGURAITON menu and press the ENT button.
The COMPONENT OFFSET menu is displayed.



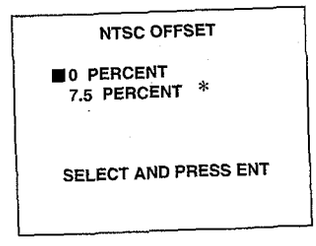
The asterisk indicates the current setting.

2 Move the cursor with the ⇩ button to the appropriate setup level.
N-10/SMPTE: When supplying the 100/0/100/0 component signals.
BETACAM 0: When supplying the 100/0/75/0 component signals.
BETACAM 7.5: When supplying the 100/7.5/75/7.5 component signals.

3 Press the ENT button.
The message "DATA SAVED" is momentarily displayed and the monitor returns to normal status.

To set the setup level of NTSC signals

1 Move the cursor with the ⇩ button to NTSC OFFSET on the MONITOR CONFIGURATION menu and press the ENT button.
The NTSC OFFSET menu is displayed.



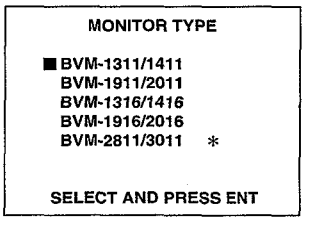
The asterisk indicates the current setting.

2 Move the cursor with the ⇩ button to the appropriate setup level.
0 PERCENT: When supplying NTSC signals of the 0 IRE set-up level.
7.5 PERCENT: When supplying the NTSC signals of the 7.5 IRE set-up level.

3 Press the ENT button.
The message "DATA SAVED" is momentarily displayed and the monitor returns to normal status.

To define the model of your monitor

1 Move the cursor with the ⇩ button to MONITOR TYPE on the MONITOR CONFIGURATION menu and press the ENT button.
The MONITOR TYPE menu is displayed.



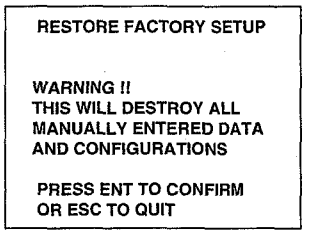
The asterisk indicates the current setting.

2 Move the cursor with the ⇩ button to the model name of your monitor.

3 Press the ENT button.
The message "DATA SAVED" is momentarily displayed and the monitor return to normal status.

To restore the factory setup

1 Move the cursor with the ⇩ button to RESTORE FACTORY SETUP in the MONITOR CONFIGURAITION menu and press the ENT button.
The following message is displayed.

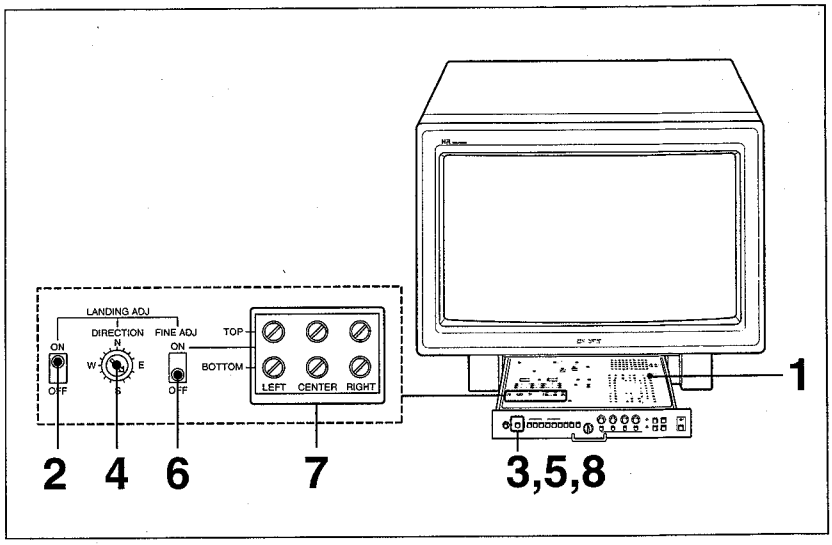


2 Press the ENT button.
All the changed menu options returns to the factory-set conditions.

To cancel the restoration, press the ESC button before pressing the ENT button in step 2.

1-5. Beam Landing Correction

Correct the beam landing (color purity) with the controls on the R2 board if there is mislanding caused by terrestrial magnetism. For correction, do the direction (coarse) adjustment first, and if color impurity sill remains, go on to the fine adjustment.



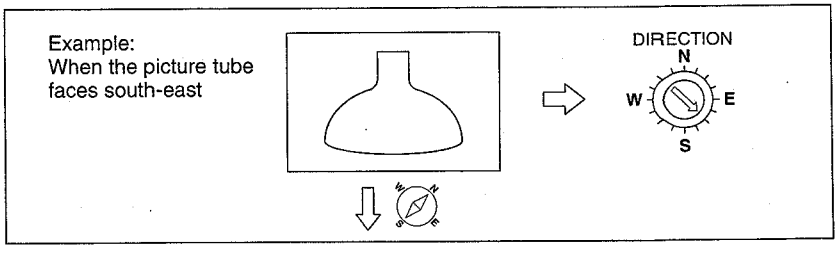
Direction adjustment

1 Display the internal white signal by pressing the WHITE button on the HY board (or display the input flat-field signal) and allow the unit for more than 30 minutes to start the adjustment.

2 Set the LANDING ADJ switch to ON.
Keep the FINE ADJ switch to OFF.

3 Press the DEGAUSS button on the front panel.

4 Using a compass, determine which direction the picture tube faces, and turn the DIRECTION switch to set the arrow head to the indication of the same direction.



If no compass is available, turn the DIRECTION switch for the best purity in white while observing the flat-field signal on the screen.

5 Press the DEGAUSS switch again.

Note

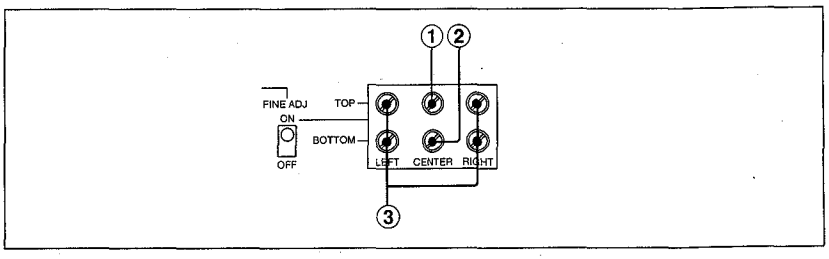
Wait for more than 5 minutes before pressing the DEGAUSS switch repeatedly. The switch does not function after while once it has been pressed.

If color impurity still remains, go on to the fine adjustment.

Fine adjustment

6 Set the FINE ADJ switch to ON.

7 Turn the FINE ADJ controls to make the white signal as bright as possible in each area of the screen.
The indications of the controls correspond to the portion of the screen. Use the controls in the following order.



8 Press the DEGAUSS switch.

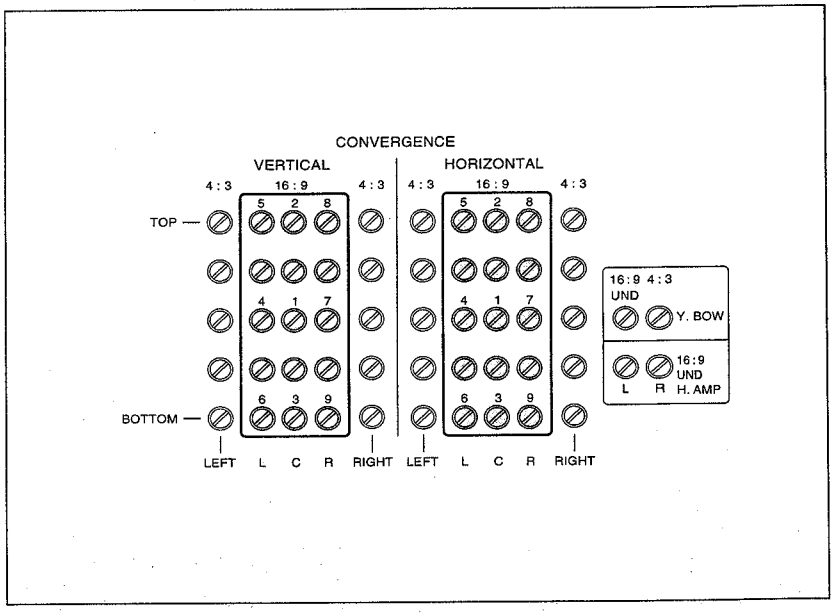
Repeat steps 7 and 8 until color impurity is eliminated.

1-6. Convergence Adjustments

For the convergence adjustment, use the CONVERGENCE controls on the DC board inside the drawer. Use the supplied screwdriver to turn these controls.

1-6-1. Convergence of a 16:9-Aspect Normal Picture

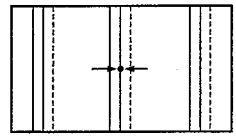
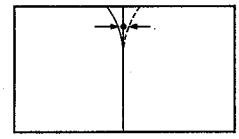
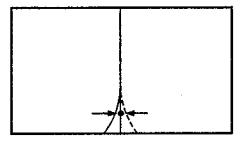
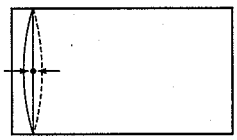
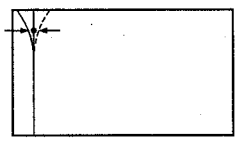
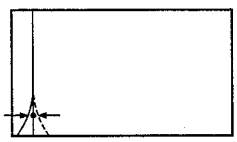
Adjust the convergence of 16:9 scan mode using the 16:9 controls.

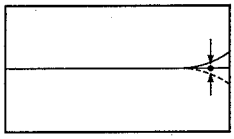
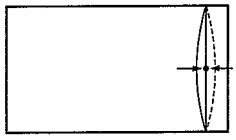
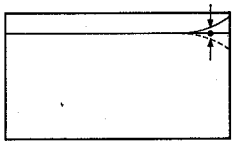
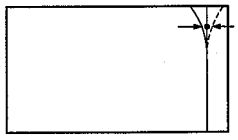
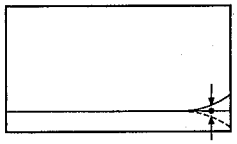
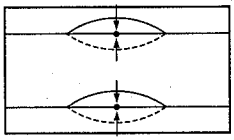
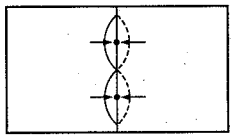


DC board

- Numbers 1 to 9 in the illustration above refer to the sequence of operations.
- The HORIZONTAL controls adjust the convergence horizontally, and the VERTICAL controls adjust it vertically.
- When adjusting the convergence, observe the portion of the screen indicated by arrows in the figures on the subsequent pages. The red and blue beams move symmetrically to the green beam.

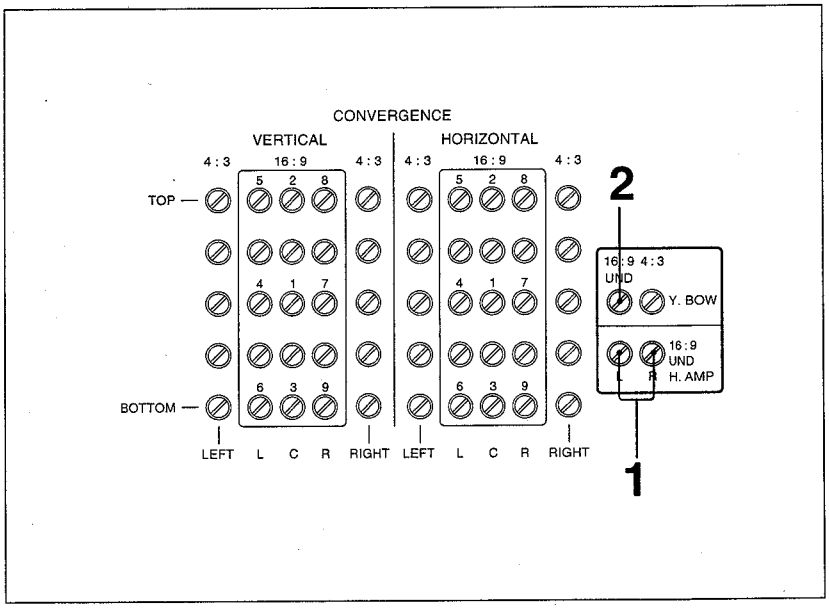
Adjust the convergence at the corresponding portion of the screen, as follows.

	VERTICAL	HORIZONTAL
1	At center	
2	At center top	
3	At center bottom	
4	At left center	
5	At top left	
6	At bottom left	

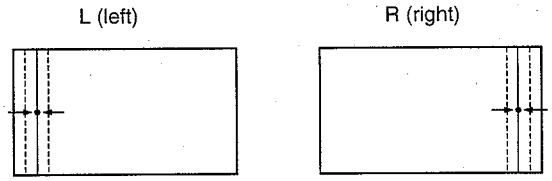
	VERTICAL	HORIZONTAL
7 At right center		
8 At top right		
9 At bottom right		
10 Adjust the convergence between the center and top and between the center and bottom on the screen as required.		

1-6-2. Convergence of a 16:9-Aspect Underscanned Picture

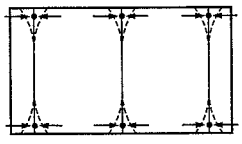
Adjust the convergence of 16:9 underscan mode using the 16:9 UND H. AMP and 16:9 UND Y. BOW controls after the convergence adjustment of normal scan mode is completed.



1 Adjust the horizontal convergence with the 16:9 UND. H. AMP controls.

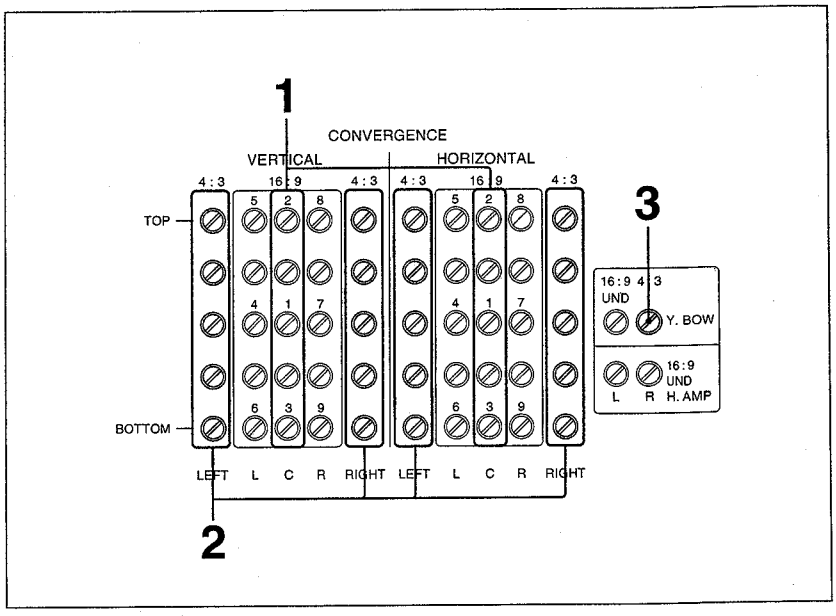


2 Adjust the horizontal convergence at the corners of the picture with the 16:9 UND. Y. BOW control.



1-6-3. Convergence of a 4:3-Aspect Picture

Adjust the convergence of 4:3 scan mode.



1 Adjust the convergence at the center of the screen following the steps 1 to 3 in "1-6-1. Convergence of a 16:9-aspect normal picture."

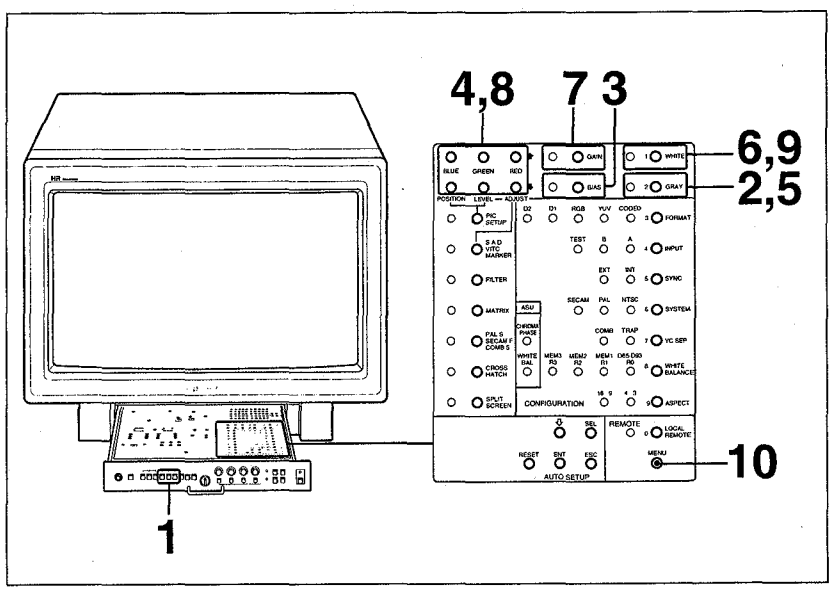
2 Adjust the convergence at the right and left portions of the screen using the 4:3 controls.

3 Adjust the horizontal convergence at the corners using the 4:3 Y. BOW control.

1-7. Picture Adjustments

1-7-1. White Balance Adjustment

During the adjustment, turn the red green and blue beams on and off with the SCREEN switches on the front panel as required.



1 Display a test signal on the screen.

2 Press the GRAY button.
The associated lamp lights and the internal gray signal is displayed on the screen.

3 Press the BIAS button.
The associated lamp lights.

4 Adjust the white balance at the lowlight by pressing the BLUE, GREEN and RED buttons ↑ or ↓.

5 Press the GRAY button again.
The associated lamp goes off and the internal gray signal disappears.

6 Press the WHITE button.
The associated lamp lights and the internal 100% white signal is displayed on the screen.

7 Press the GAIN button.
The associated lamp lights.

8 Adjust the white balance at the highlight by pressing the BLUE, GREEN and RED buttons ↑ or ↓.

9 When the adjustment is completed, press the WHITE button so that the lamp goes off and the white signal disappears.

Repeat steps 2 through 9 until the same white can be obtained both at the lowlight and highlight.

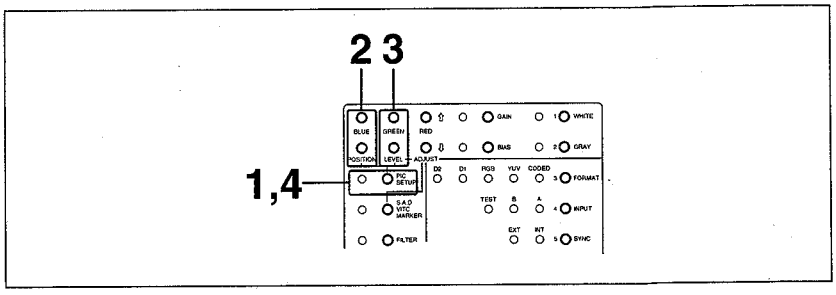
For white balance adjustment using a color analyzer or equivalent, see Section 2.

10 Press the MENU button to display the SAVE WHITE BALANCE menu and store the white balance in the resister.

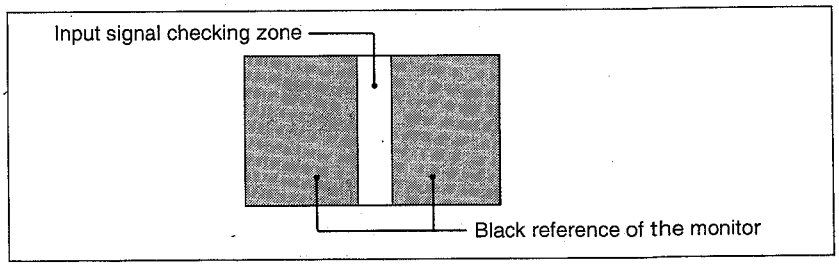
See "1-4-4. Selecting the White Balance."

1-7-2. Black Level Adjustment

Match the black reference of the monitor with the black level of the input signal to be monitored.



1 Press the PIC SETUP button.
The associated lamp lights and a vertical picture band and the black reference of the monitor are displayed on the screen.



2 Press the POSITION buttons ↑ or ↓ to move the position of the picture band horizontally so that the black signal of the picture is located next to the black reference area.

3 Press the LEVEL buttons ↑ or ↓ to match the brightness of the black reference area with that of the input black signal.

4 Press the PIC SETUP button again.

1-8. Specifications

General

System	BVM-2811: 525 lines per picture, 60 fields per second interlaced, NTSC BVM-3011P: 625 lines per picture, 50 fields per second interlaced, PAL
CRT	16:9-aspect Super Fine Pitch Trinitron 0.35 mm phosphor trio pitch, 90-degree deflection, 36.5 mm dia. in-line gun Effective picture size: 348.8 × 620 mm (h/w) ($13^3/_4 \times 24^1/_2$ inches) 711.4 mm (28 inch) picture measured diagonally
Picture tube protection	EHT (Extremely High Tension) is shut off in the event of scan failure.
Warm up	30 minutes to meet specifications
Anode voltage	Properly adjusted HV 27 kV at zero beam current
Power consumption	BVM-2811: 185 W (typical) 220W (maximum) BVM-3011P: 175 W (typical) 210W (maximum)
Power requirements	BVM-2811: 100-120 V AC ±10%, 50/60 Hz BVM-3011P: 220-240 V AC ±10%, 50/60 Hz
Dimensions	754 × 615 × 677 mm (w/h/d) ($29^3/_4 \times 24^1/_4 \times 26^3/_4$ inches) including projecting parts and controls
Mass	92 kg (202 lb 13 oz)

Inputs/outputs

Video inputs	BNC type (5 inputs with 5 loop-through outputs) VIDEO A/B, TEST, R/G/B: 1 Vp-p composite ±6 dB positive, high-impedance Y: Composite, 1.0 Vp-p ±6 dB, high-impedance R-Y/B-Y: 0.7 Vp-p ±6 dB, high-impedance
Serial component video input (BVM-2811 only)	
	COMPONENT DIGITAL: BNC type (2 inputs with 2 active-through outputs)
Transmission length	Max. 200 m (656 feet) (when using a coaxial cable 5C-2V of Fujikura America Inc./Fujikura Europa Ltd. (FEL) or the equivalent)

Sampling frequency	Y: 13.5 MHz R-Y/B-Y: 6.75 MHz
Quantization	10 bits/sample
Color system	525/60 or 625/50, automatic selection
Bandwidth	Y: 100 Hz to 5.75 MHz ±1 dB R-Y/B-Y: 100 Hz to 2.75 MHz ±1 dB
K factor	Less than 1% (2T pulse)
Sync input	EXT SYNC: BNC type (1 input with 1 loop-through output) 1 to 8 Vp-p negative, high-impedance
Input return loss	More than 46 dB (7 MHz with 75-ohm termination)
Hum rejection	Reduced by more than 50 dB Maximum hum: Less than 4 Vrms, where hum is applied to the monitor in floating ground mode
Video outputs (BVM-3011P only)	
	DECODER OUT : BNC type (3) Output decoded signals only when BKM-1440 is installed.
Remote control	REMOTE: 10-pin connector (1)
Probe receptacle	AUTO SETUP PROBE: 12-pin connector (1)

Video signal

Luminance channel (RGB and composite signals)	
Differential gain	Within 2% for a luminance from 0 to 68 cd/m^2
Differential phase	Within 2° for a luminance from 0 to 68 cd/m^2
Frequency response	Monochrome mode: 100 Hz to 8 MHz ±1 dB (aperture correction at 0) Color mode: Trap or comb filter removes frequency in 3.58 MHz region (BVM-2811) or 4.43 MHz (BVM-3011P) region RGB mode: 100 Hz to 10 MHz ±1 dB
Chrominance channel	
Demodulation axis	R-Y, B-Y
Bandpass	1.3 MHz equiband
Subcarrier regeneration	±1° (standard input signal)
Phase control range	More than ±15° (standard input signal)
Chroma gain control range	More than ±6 dB
Chrominance/luminance	
Time error	Less than 30 nsec
Gain error	Less than 5%
Aperture correction	Adjustable continuously up to 6 dB boost at 4.5 MHz or 6.5 MHz (selectable)
DC restoration (RGB and composite signals)	Back porch type Back porch level: Within 1% of peak luminance, 10% to 90% (average picture level)

Synchronization

AFC time constant	0.5 msec (fast), 2 msec (normal) or 7 msec (slow)
Line pull range/line hold range	More than ±500 Hz at 0.5 msec time constant
Vertical blanking time	Normal: Within 1 msec. Underscan: Within 0.8 msec.
Horizontal retrace time	Within 10 µsec

Picture performance

Normal scan	5% overscan of CRT effective screen area (adjustable range more than ±15%)
Underscan	3% underscan of CRT effective screen area (adjustable range more than ±15%)
Linearity	Within a central area bounded by a circle whose diameter equals the picture height, within 0.5% of the picture height, out of area 1%
Color temperature	D65, adjustable to other color temperatures

Nominal chromaticity coordinates

BVM-2811: SMPTE C phosphor

	x	y
Red	0.630	0.340
Green	0.310	0.595
Blue	0.155	0.070

BVM-3011P: EBU standard phosphor

	x	y
Red	0.64	0.33
Green	0.29	0.60
Blue	0.15	0.06

Convergence error	Central area: Less than 0.5 mm Periphery: Less than 0.8 mm
Calibrated contrast	68 cd/m^2 at peak white of standard 1 Vp-p signal
Raster size stability	Less than 1% picture height, 0% to 100% APL at 68 cd/m^2 peak luminance
Scan delay	Horizontal: Approx. 1/4 line Vertical: Approx. 1/2 field
Resolution	950 TV lines (center, at 68 cd/m^2 luminance)

Environment

Operating temperature	0° C to 40° C (32° F to 104° F)
Optimum temperature range	20° C to 30° C (68° F to 86° F)
Humidity	0 to 90% (no condensation)
Altitude	Approx. 3,050 m (10,000 feet) max.

Supplied accessories

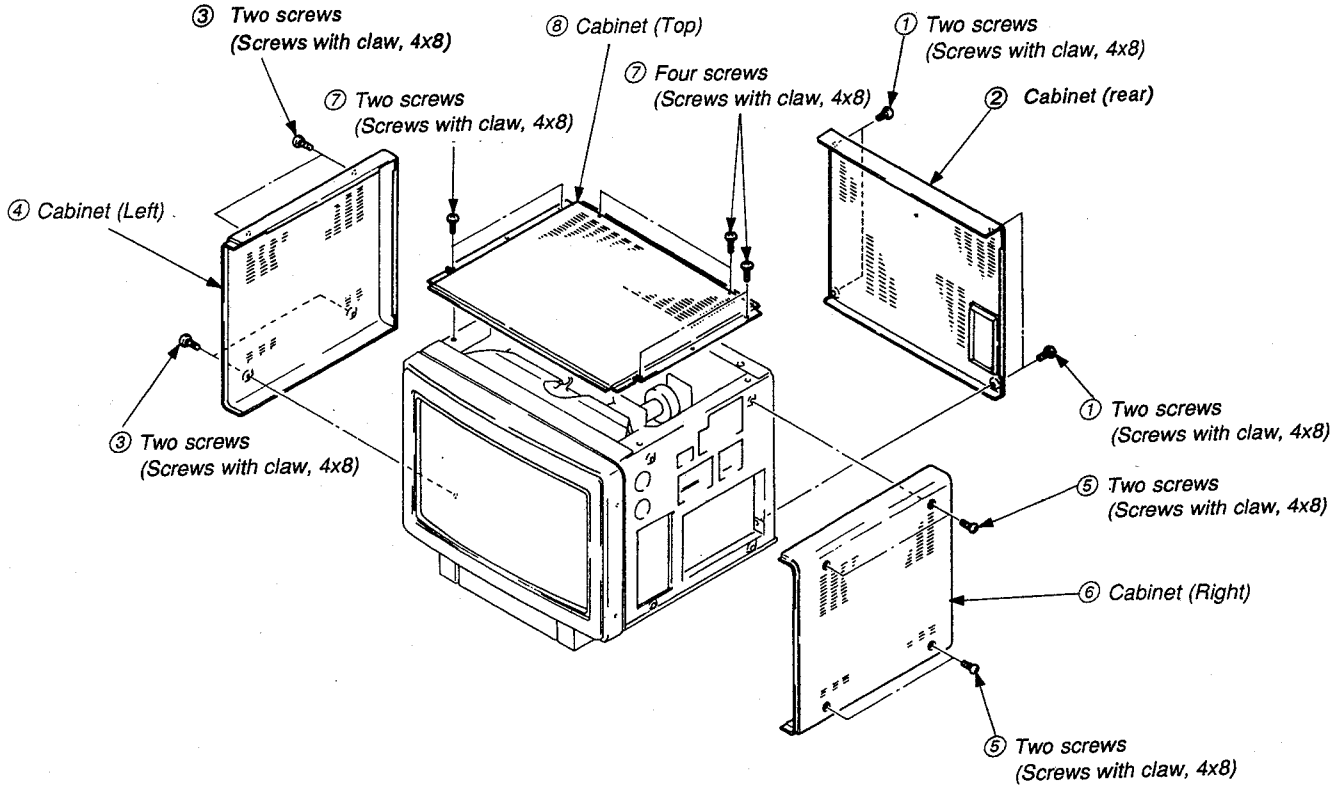
AC power cord (1)
Cord stopper (1)
Screwdriver (1)
Drawer keys (2)
Extension board (1)
10-pin connector (1)
Fuses (2)
Operation and maintenance manual (1)

Design and specifications are subject to change without notice.

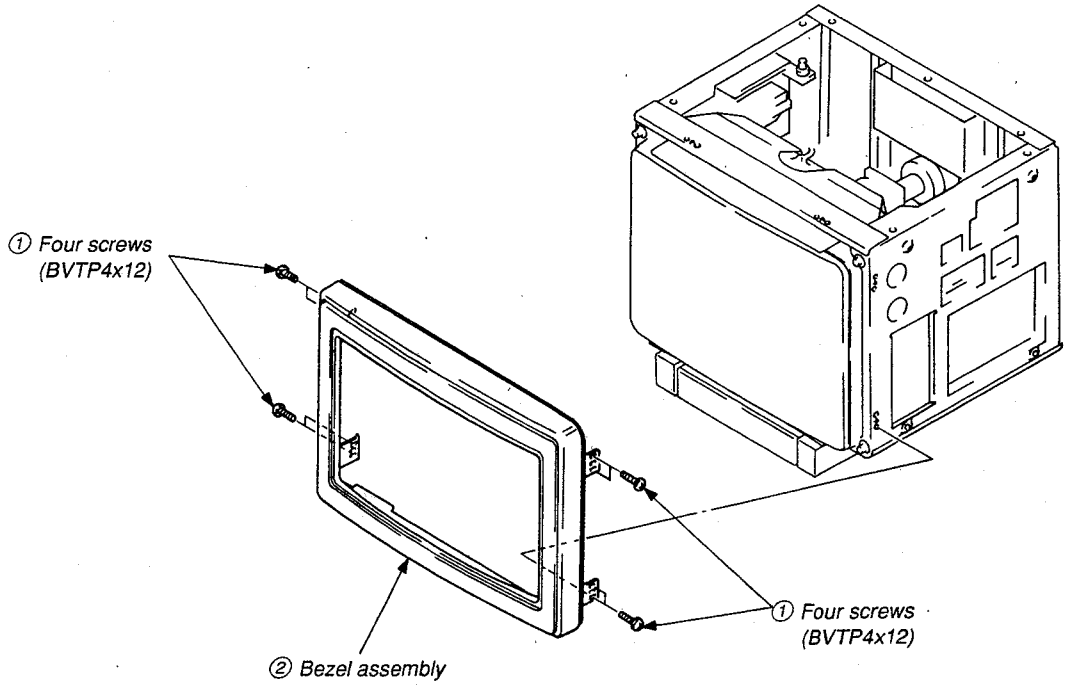
(1)

SECTION 2
DISASSEMBLY

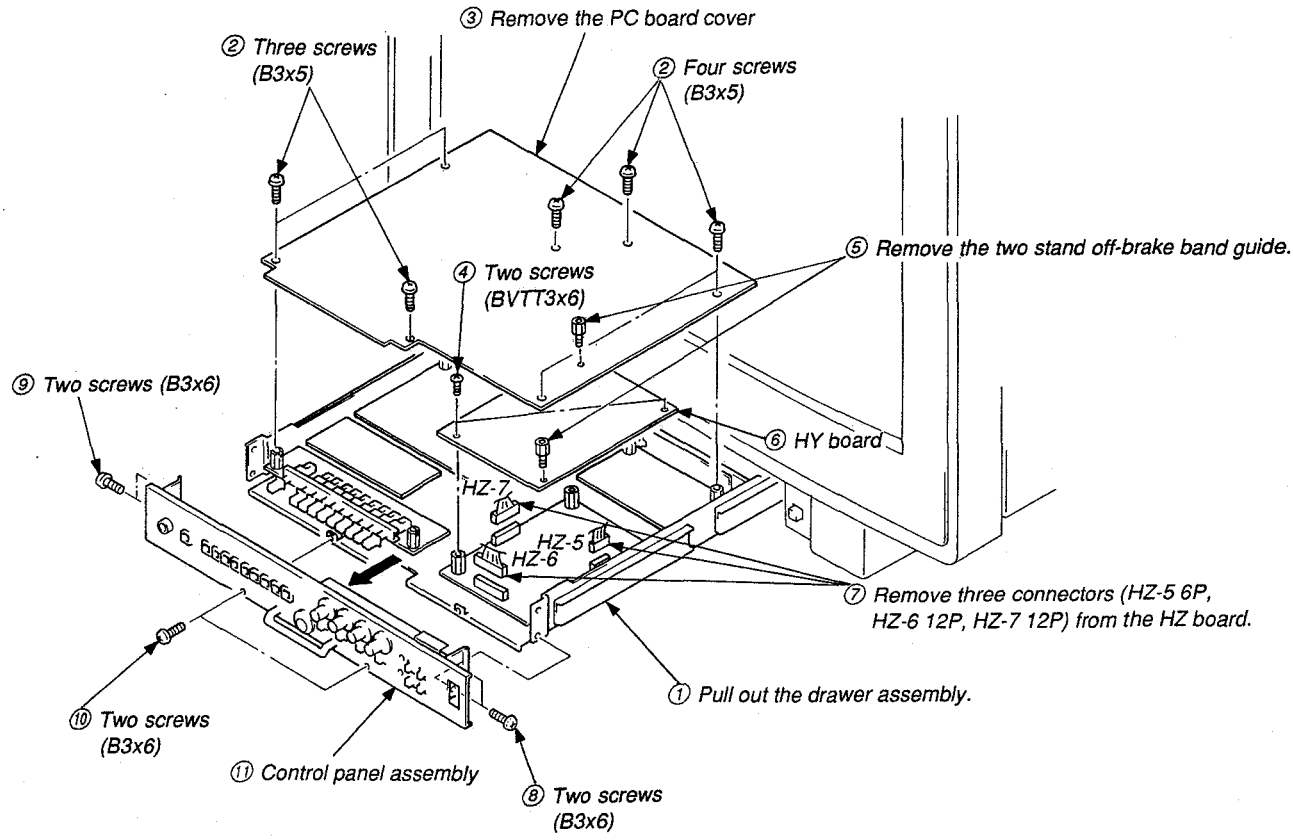
2-1. CABINET REMOVAL



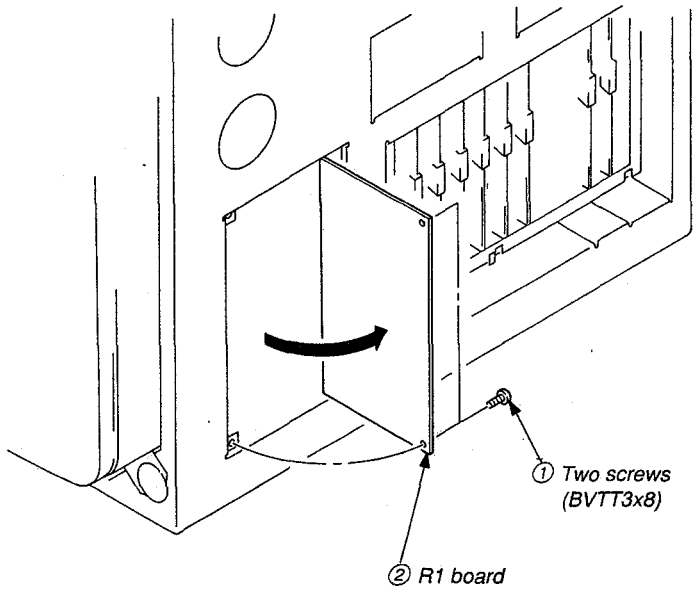
2-2. BEZEL ASSEMBLY REMOVAL



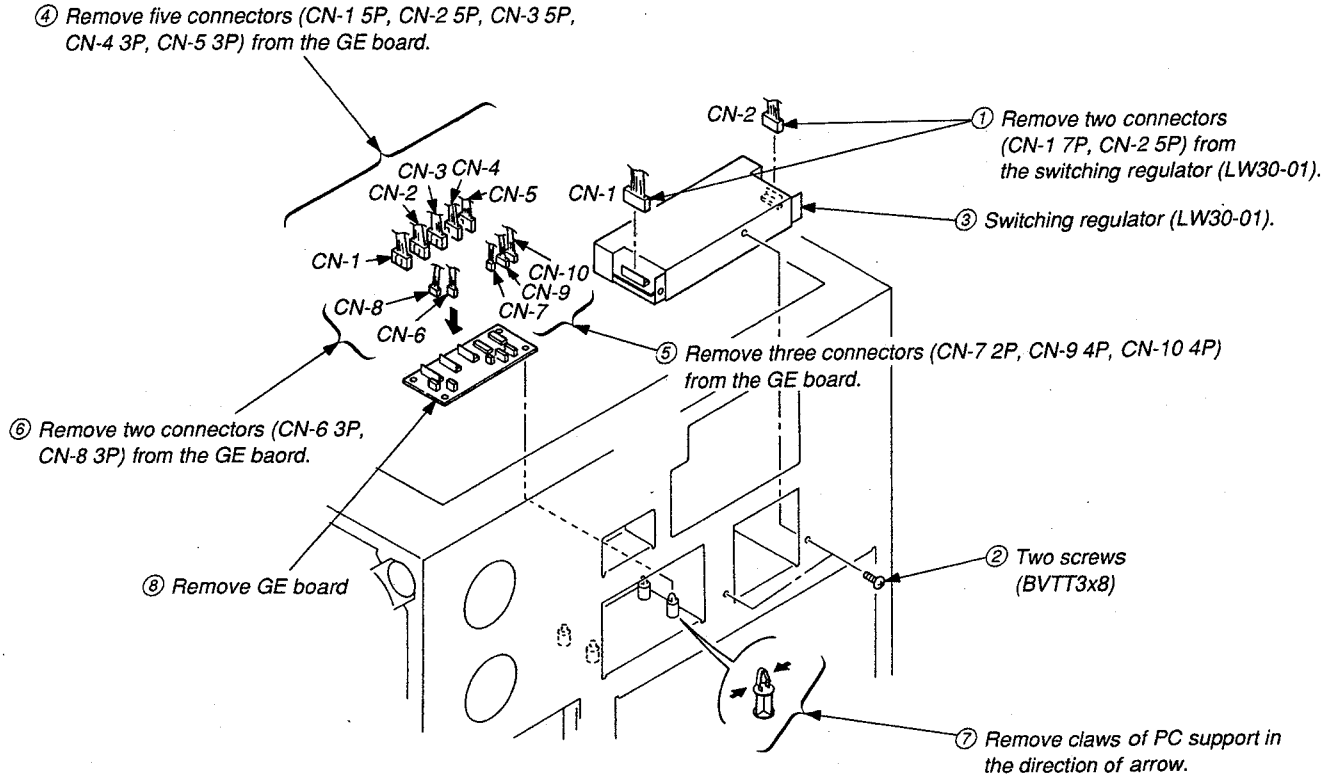
2-3. CONTROL PANEL ASSEMBLY REMOVAL


③ Remove the PC board cover
② Three screws (B3x5)
② Four screws (B3x5)
⑤ Remove the two stand off-brake band guide.
④ Two screws (BVTT3x6)
⑨ Two screws (B3x6)
⑥ HY board
HZ-7
HZ-5
HZ-6
⑦ Remove three connectors (HZ-5 6P, HZ-6 12P, HZ-7 12P) from the HZ board.
① Pull out the drawer assembly.
⑩ Two screws (B3x6)
⑪ Control panel assembly
⑧ Two screws (B3x6)

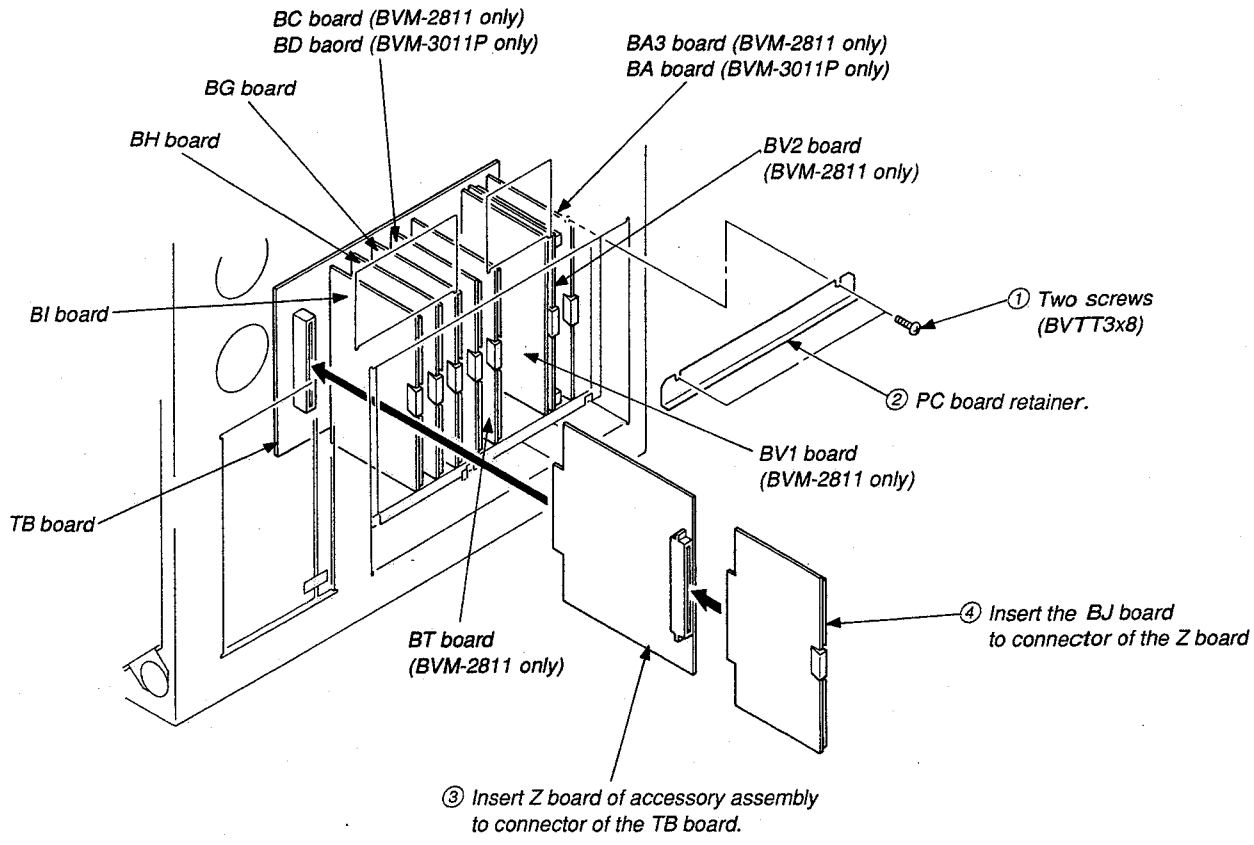
2-4. CHECK OF R1 BOARD



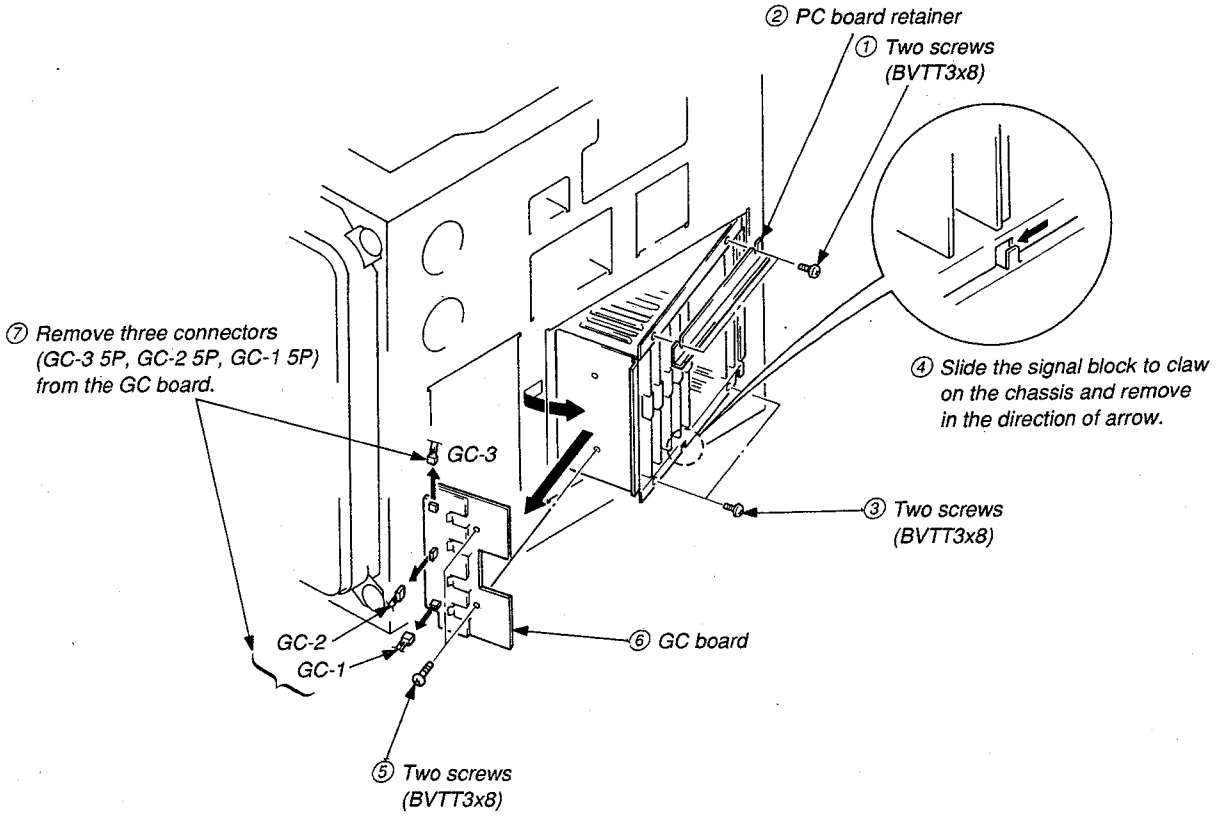
2-5. SWITCHING REGULATOR (LW30-01) AND GE BOARD REMOVAL


④ Remove five connectors (CN-1 5P, CN-2 5P, CN-3 5P, CN-4 3P, CN-5 3P) from the GE board.
CN-2
① Remove two connectors (CN-1 7P, CN-2 5P) from the switching regulator (LW30-01).
CN-3 CN-4
CN-2
CN-5
CN-1
CN-1
③ Switching regulator (LW30-01).
CN-10
CN-9
CN-8
CN-7
CN-6
⑤ Remove three connectors (CN-7 2P, CN-9 4P, CN-10 4P) from the GE board.
⑥ Remove two connectors (CN-6 3P, CN-8 3P) from the GE baord.
⑧ Remove GE board
② Two screws (BVTT3x8)
⑦ Remove claws of PC support in the direction of arrow.

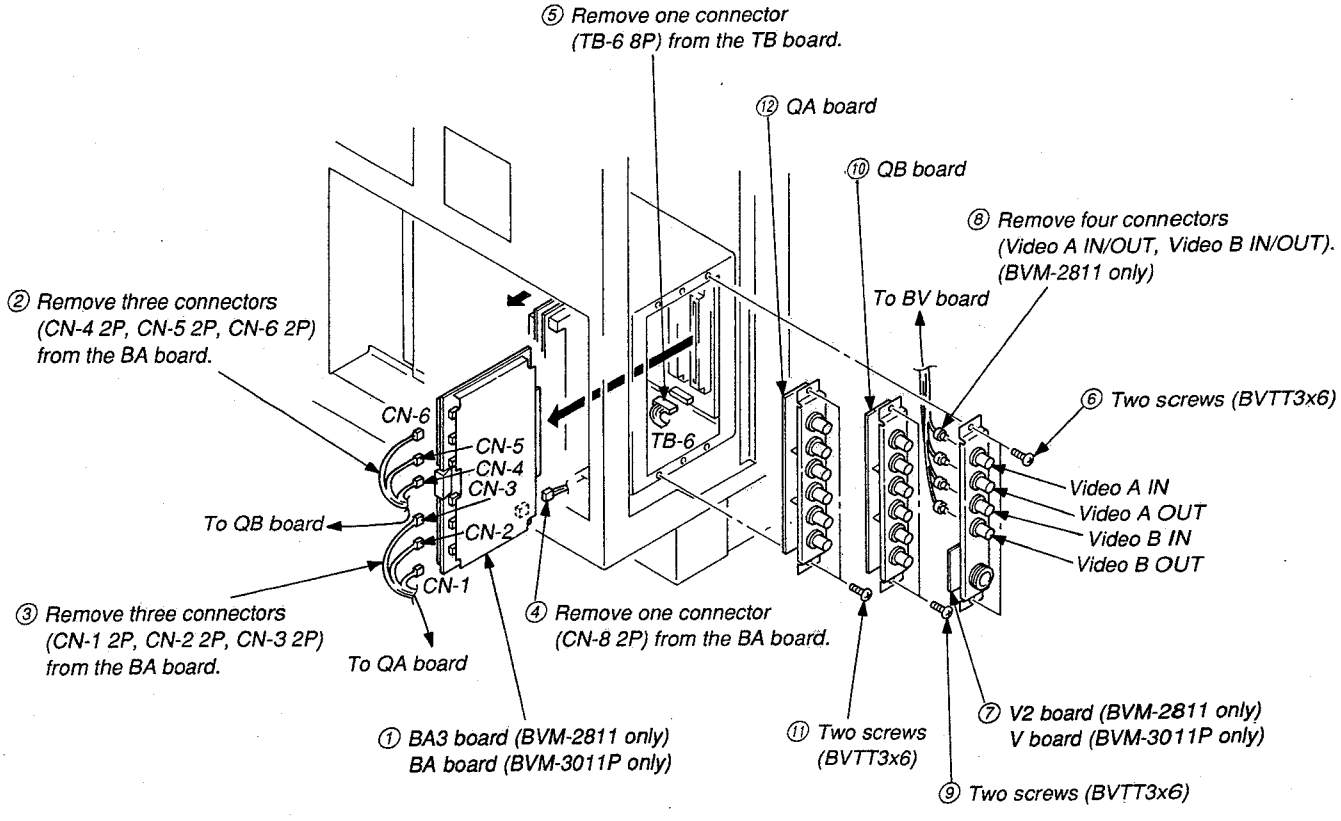
2-6. CHECK OF BJ BOARD


BC board (BVM-2811 only)
BD baord (BVM-3011P only)
BA3 board (BVM-2811 only)
BA board (BVM-3011P only)
BG board
BH board
BV2 board (BVM-2811 only)
BI board
① Two screws (BVTT3x8)
② PC board retainer.
BV1 board (BVM-2811 only)
TB board
④ Insert the BJ board to connector of the Z board
BT board (BVM-2811 only)
③ Insert Z board of accessory assembly to connector of the TB board.

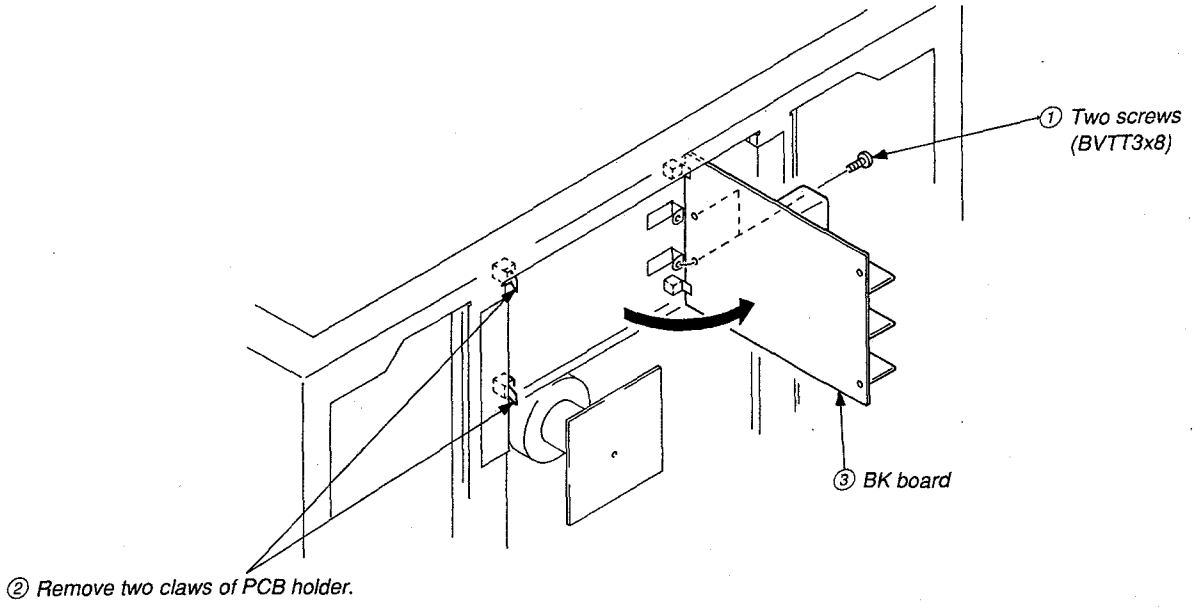
2-7. GC BOARD REMOVAL


② PC board retainer
① Two screws (BVTT3x8)
⑦ Remove three connectors (GC-3 5P, GC-2 5P, GC-1 5P) from the GC board.
④ Slide the signal block to claw on the chassis and remove in the direction of arrow.
GC-3
③ Two screws (BVTT3x8)
GC-2
GC-1
⑥ GC board
⑤ Two screws (BVTT3x8)

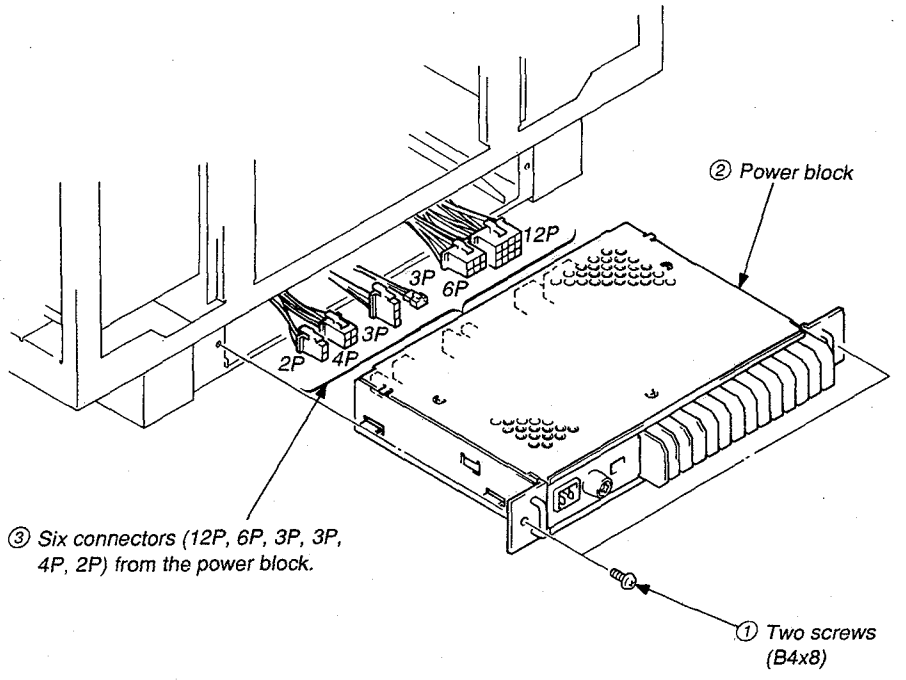
2-8. QA, QB AND V BOARD REMOVAL


⑤ Remove one connector (TB-6 8P) from the TB board.
⑫ QA board
⑩ QB board
⑧ Remove four connectors (Video A IN/OUT, Video B IN/OUT). (BVM-2811 only)
To BV board
② Remove three connectors (CN-4 2P, CN-5 2P, CN-6 2P) from the BA board.
⑥ Two screws (BVTT3x6)
CN-6
CN-5
CN-4
CN-3
CN-2
CN-1
TB-6
Video A IN
Video A OUT
Video B IN
Video B OUT
To QB board
③ Remove three connectors (CN-1 2P, CN-2 2P, CN-3 2P) from the BA board.
④ Remove one connector (CN-8 2P) from the BA board.
To QA board
① BA3 board (BVM-2811 only) BA board (BVM-3011P only)
⑪ Two screws (BVTT3x6)
⑦ V2 board (BVM-2811 only) V board (BVM-3011P only)
⑨ Two screws (BVTT3x6)

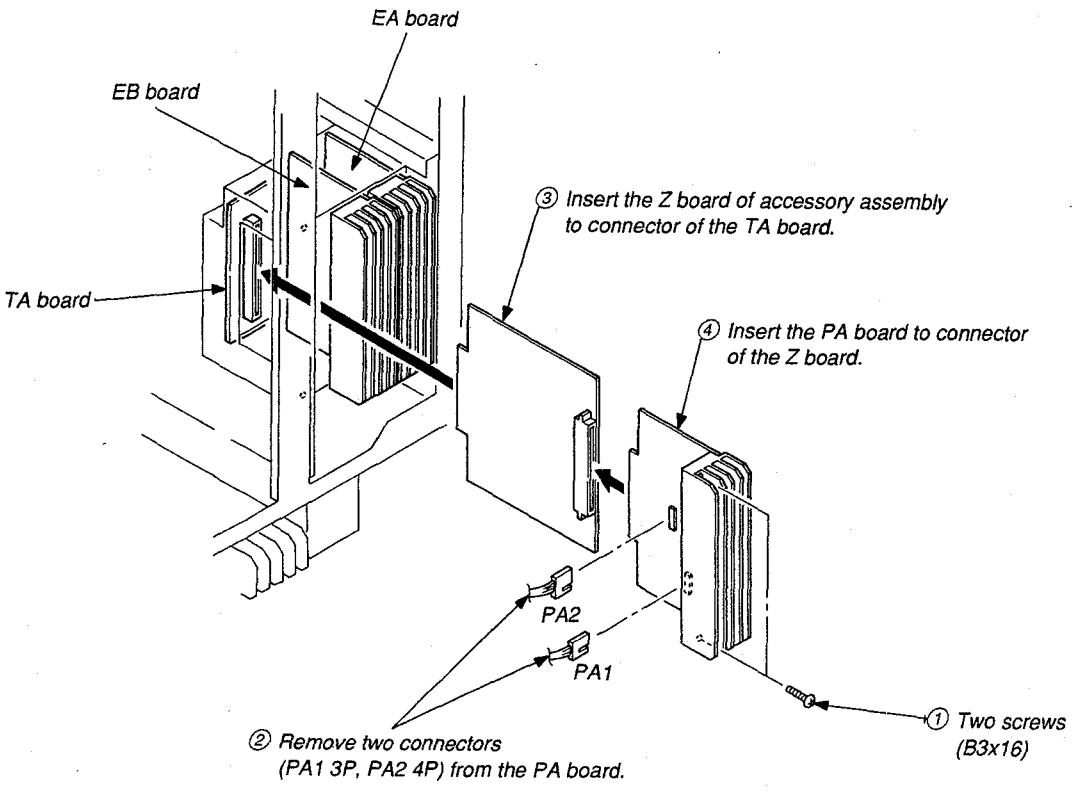
2-9. CHECK OF BK BOARD



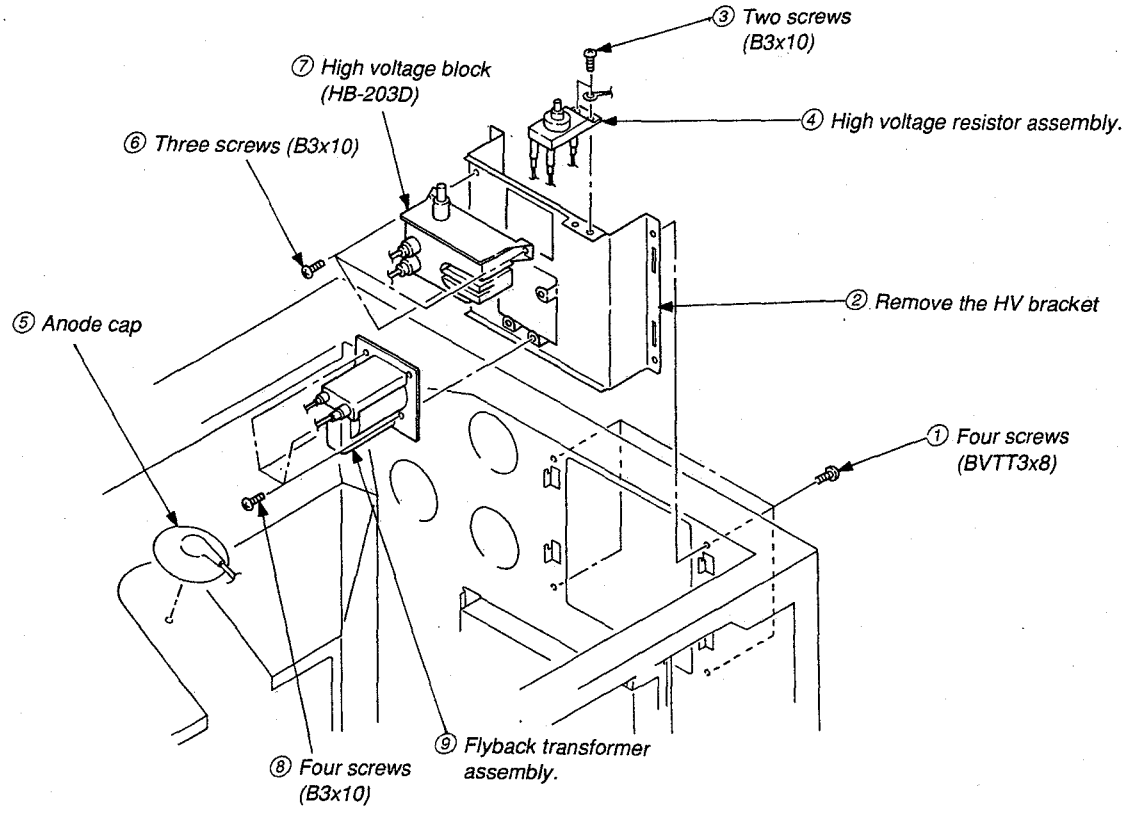
2-10. POWER BLOCK ASSEMBLY REMOVAL



2-11. CHECK OF PA BOARD

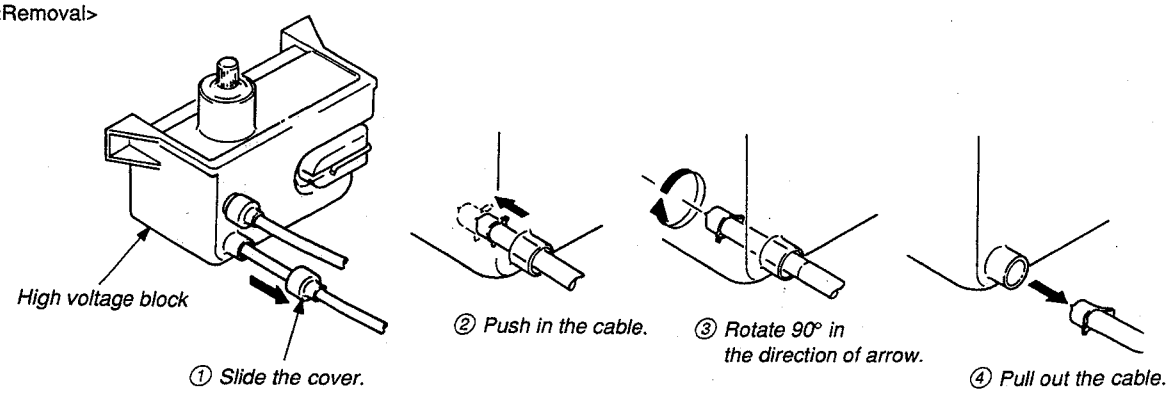

EA board
EB board
TA board
③ Insert the Z board of accessory assembly to connector of the TA board.
④ Insert the PA board to connector of the Z board.
PA2
PA1
① Two screws (B3x16)
② Remove two connectors (PA1 3P, PA2 4P) from the PA board.

2-12. FLYBACK TRANSFORMER AND HIGH VOLTAGE BLOCK

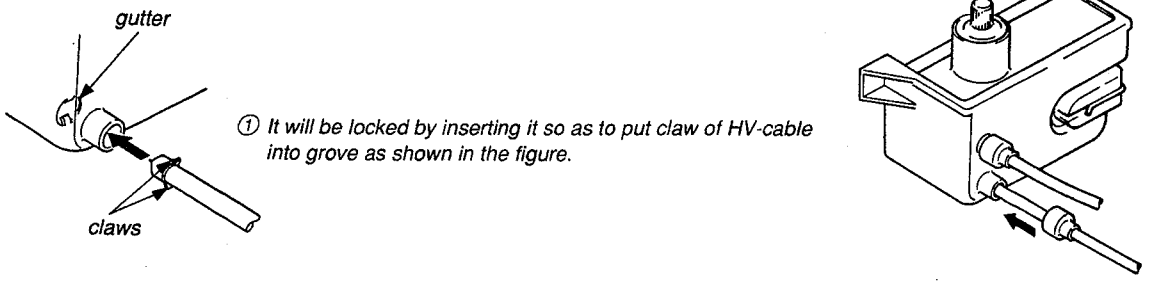

③ Two screws (B3x10)
⑦ High voltage block (HB-203D)
④ High voltage resistor assembly.
⑥ Three screws (B3x10)
② Remove the HV bracket
⑤ Anode cap
① Four screws (BVTT3x8)
⑧ Four screws (B3x10)
⑨ Flyback transformer assembly.

2-13. REMOVAL AND REPLACEMENT OF HIGH VOLTAGE CABLE

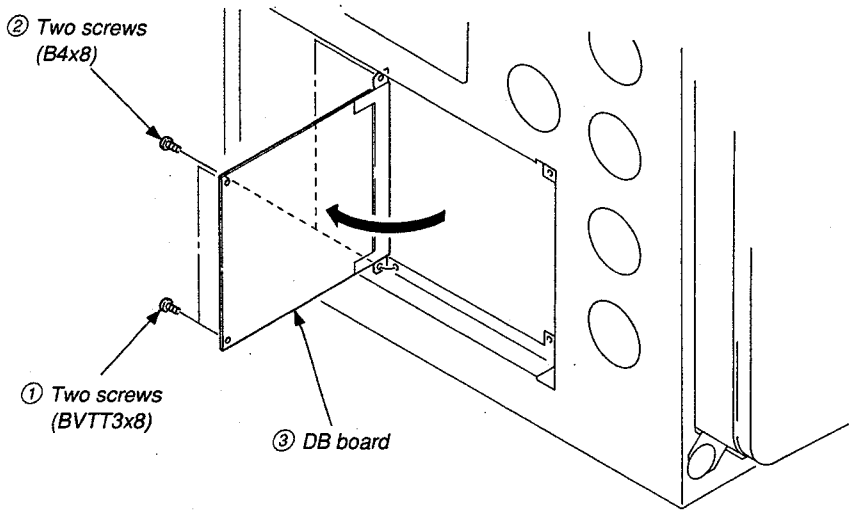
<Removal>



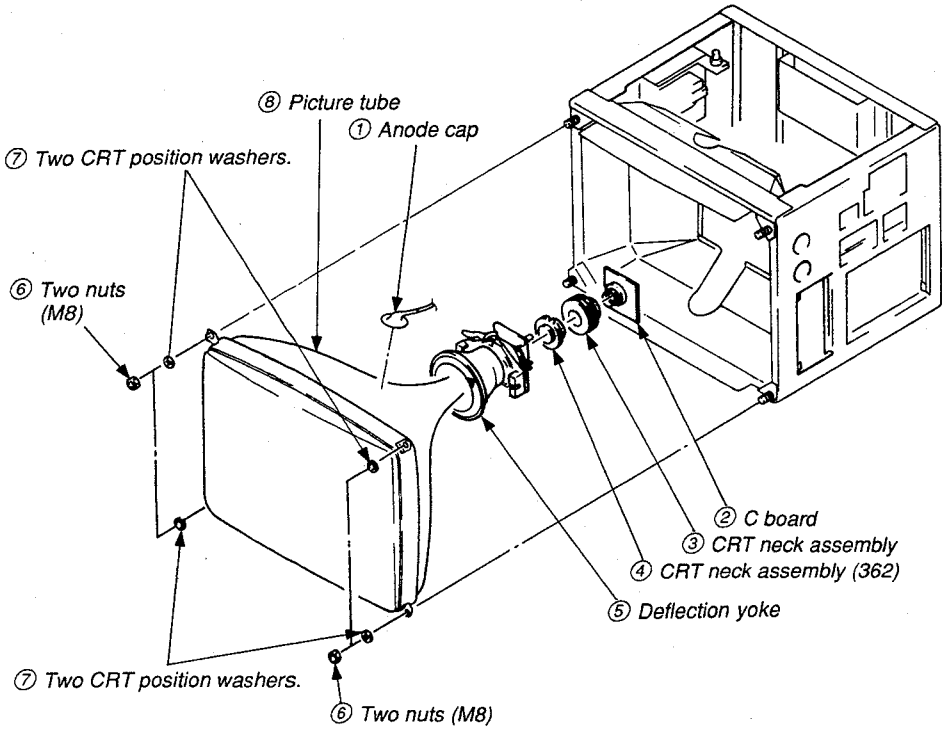
<Installation>


gutter
claws
① It will be locked by inserting it so as to put claw of HV-cable into grove as shown in the figure.
② Install in the cover.

2-14. CHECK OF DB BOARD

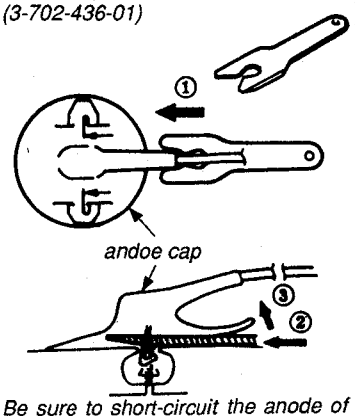


2-15. PICTURE TUBE REMOVAL



• **REMOVAL OF ANODE CAP**

Anode cap remover (3-702-436-01)



Be sure to short-circuit the anode of picture tube and the anode cap to ground after removing the anode cap.

SECTION 3
CIRCUIT DESCRIPTIONS

3-1. BA3 BOARD (BVM-2811 ONLY)

3-1-1. Input Circuit

Hook up

This circuit is composed of transistors Q101 to Q105 and performs common mode rejection. In Fig. 3-1-1, gains of amplifier for input A and B are described as follows.

$$A=\frac{Rc}{Ri},\ B=-\frac{Rc}{Ri}$$

When input (ec+ei) is applied to A and input (ec–ei) to B, then output eo is

$$eo=\frac{Rc}{Ri}(ec+ei)+(-\frac{Rc}{Ri})(ec-ei)=2\frac{Rc}{Ri}ei$$

This equation indicates that ec is eliminated and there is no common mode signal in output signal. With hook up circuit, NF (Negative Feedback) amplifier is used to improve characteristic, however there is no common mode signal in output signal. Other systems are also the same.

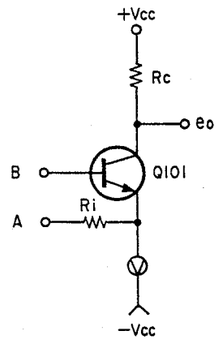


Fig. 3-1-1

Input select SW, sync select SW

Video A/B or G/Y (component) signal is selected by Input select SW IC1 while INT/EXT in Sync signal is selected by sync select SW IC3 and IC4.

3-1-2. Sync AGC Circuit

Sync AGC

This circuit is composed of LPF (Q701), variable amplifier (Q702 to Q705), AMP (Q706 and Q707), bias control circuit (Q708 to Q710) and gain control circuit (Q711 and Q712). The reversed composite video (sync) signal is output to eo (Q707 collector) in Fig. 3-1-2. The bias control circuit compares maximum value of eo with E1 (base voltage of Q708) and controls bias of amplifier so that they match. Also the gain control circuit compares pedestal voltage of eo with E2 (base voltage of Q711), and controls the gain of variable amplifier so that they match.

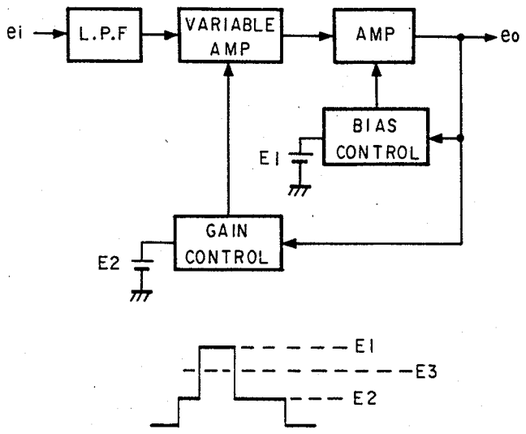


Fig. 3-1-2.

Composite sync separation and vertical sync separation

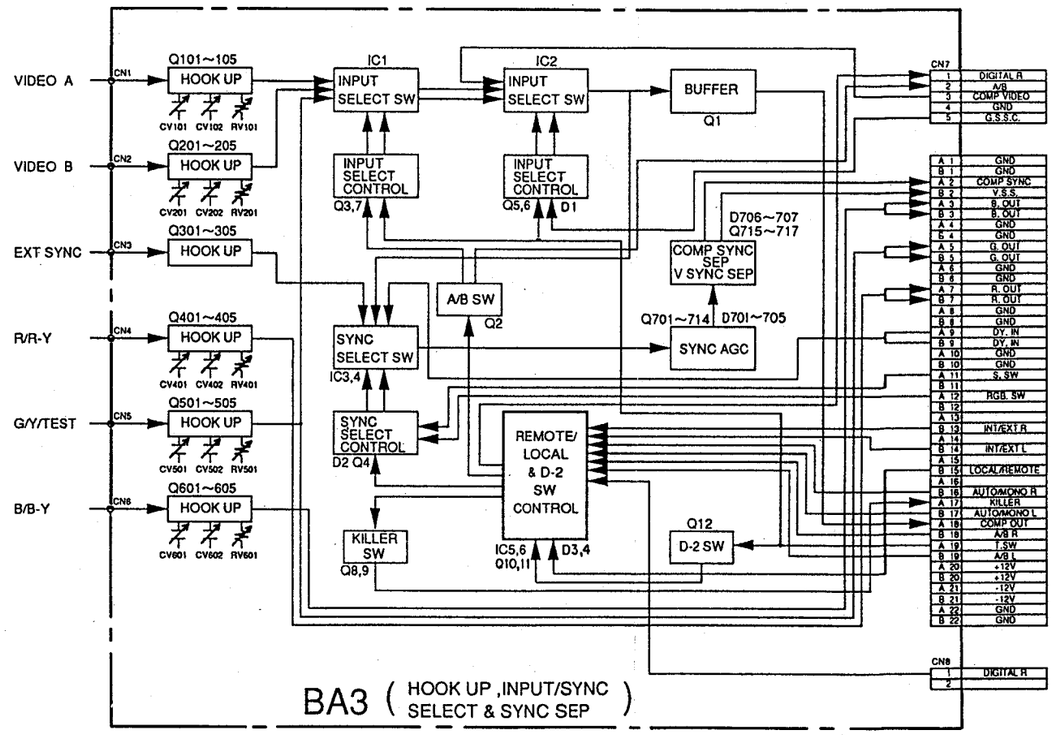
Composite sync is separated by comparing E3 (base voltage of Q713) by Q713 to Q715. Horizontal component in this signal is eliminated through LPF (Q716) and vertical sync is separated at Q717.

3-1-3. Operation Mode Switching Circuit

REMOTE/LOCAL and D2 SW control

The signal for input select SW and sync select control is generated according to the control mode (REMOTE/LOCAL).

BA3 BOARD BLOCK DIAGRAM



3-2. QA, QB, BA (BVM-3011P ONLY) BOARDS

3-2-1. Input Circuit

Cable Compensation (QA, QB)

CABLE COMPENSATION is composed of inductance L and capacitor C1 (Fig. 3-2-1) in QA board and performs return loss compensation.

Grounding or floating in input terminal can be selected by switch S1.

On floating mode, common mode rejection can be performed. QB board also has same function.

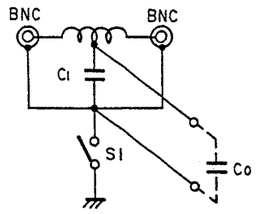


Fig. 3-2-1.

Hook Up Circuit (BA)

This circuit is composed of transistors Q101-Q105 and performs common mode rejection when SW S1 is selected to the floating mode.

In Fig. 3-2-1, Gains of amplifier for input A and B are derived as follows.

$$A = \frac{Rc}{Ri}$$: Gain of amplifier for input A

$$B = -\frac{Rc}{Ri}$$: Gain of amplifier for input B

When input (ec+ei) is applied to input A and
input (ec–ei) to input B, then output eo is

$$eo = \frac{Rc}{Ri}(ec+ei) + (-\frac{Rc}{Ri})(ec-ei) = 2\frac{Rc}{Ri}ei$$

This equation indicates that ec is eliminated and there is no common mode signal in output signal.

On hook up circuit, NF Amplifier (Negative Feedback) is used to get frequency response flat.

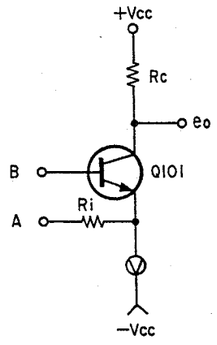


Fig. 3-2-2.

Input select SW, sync select SW (BA)

For composite video signal, VIDEO A/B/TEST mode is selected by INPUT SELECT SW (IC1). For sync signal, INT SYNC/EXT SYNC is selected by SYNC SELECT SW IC2.

3-2-2. Sync AGC Circuit

This circuit is composed of following components; LPF (Low Pass Filter) (Q701), variable gain amplifier (Q702-Q705), bias control circuit (Q708-Q710), gain control circuit (Q711, 712)and amplifier (Q706, 707), Fig. 3-2-3 shows block diagram of this circuit.

An inverted composite video signal or composite sync signal (eo) is derived at the collector of transistor Q707.

The bias control circuit compares maximum value of eo with base voltage of Q708 (E1) and controls bias of amplifier so that they match.

Also the gain control circuit compares pedestal level of eo with base voltage of Q711 (E2), and controls variable gain amplifier so that they match.

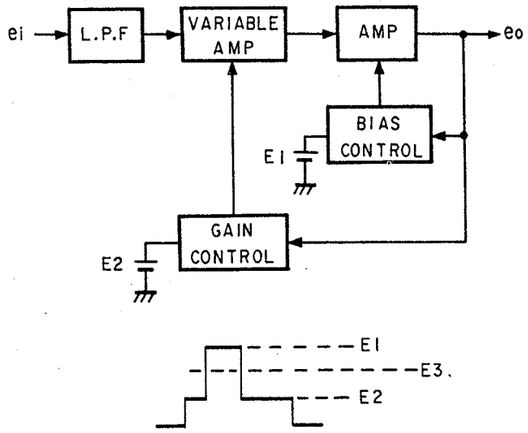


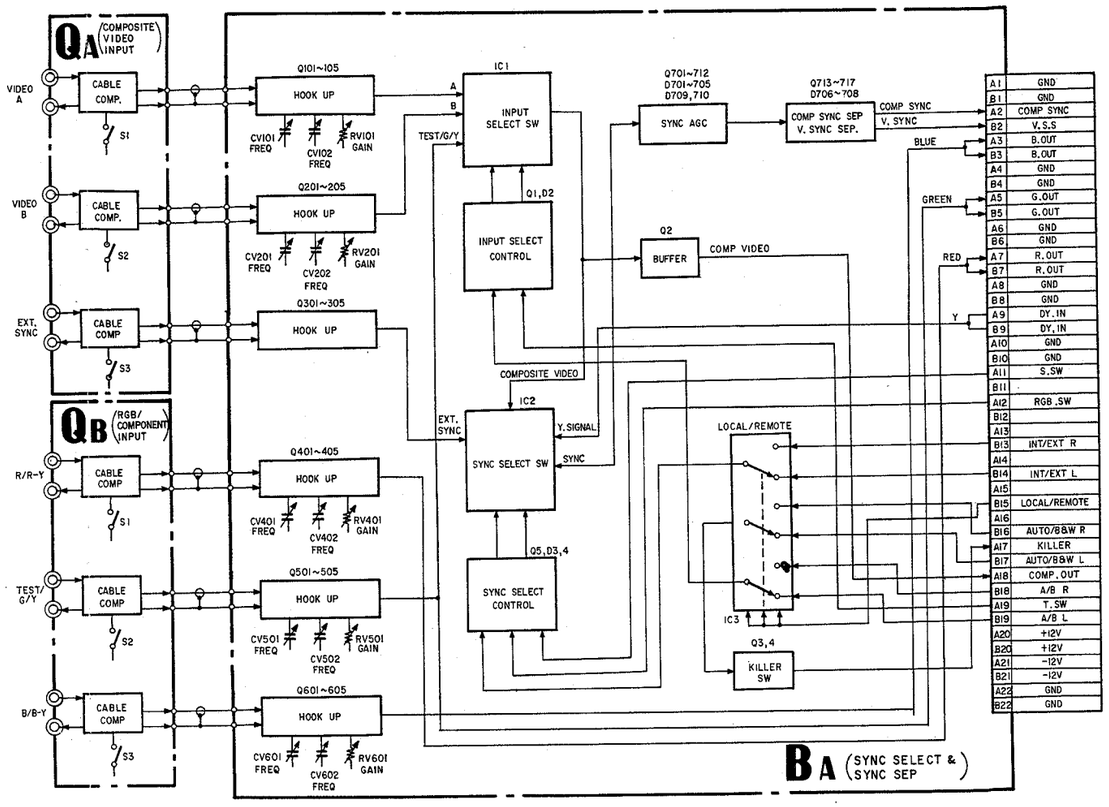
Fig. 3-2-3.

Composite Sync Separation, Vertical Sync Separation

Composite sync is separated from composite video signal or composite sync by comparing voltage eo with the base voltage of transistor Q713 (E3).

Horizontal component in composite video signal or composite sync signal is removed by LPF (Low Pass Filter, Q716) and Vertical sync is separated by transistor Q717.

BLOCK DIAGRAM OF QA, QB, BA BOARDS



(BVM-3011P ONLY)

3-3. BG BOARD

3-3-1. Luminance Signal Circuit

Filter SW
IC1 works as a selector switch of composite video signal or luminance signal derived from Y/C separation circuit. This IC activates by either FILTER-SW in right side drawer or killer signal.

Aperture Contorol
Aperture control circuit is composed of DL1 (delay line), transistors Q5, 7, 8 and IC2. IC2 operates as a variable resistor. Resistance value between Pin ① and ③ is controlled by the potential between pin ③ and pin ④, also pin ① and pin ⑥.

Input signal: $e\tau 0$
Delayed signal by delay line: $e\tau 1$
Second delayed signal: $e\tau 2$

See Fig. 3-3-1
e1 (at base of transistor Q5) is obtained as below due to the combination of direct wave and reflected wave by DL1.

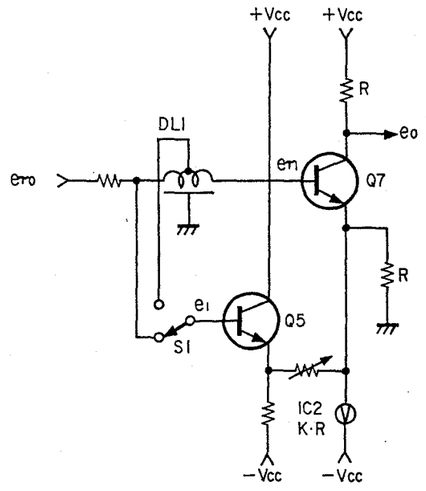


Fig. 3-3-1

$e1=(e\tau 0+e\tau 2)/2$

Therefore eo is

$$eo=-\underbrace{(e\tau 1+\frac{1}{K}}_{\text{1st term}}\underbrace{(e\tau 1-\frac{1}{2}(e\tau 0+e\tau 2)))}_{\text{2nd term}}$$

K: variable constant

In the above equation, 1st term shows waveform A in Fig. 3-3-2 and 2nd term shows waveform B. When K is variable, amount of preshoot and overshoot can be varied.
Switch S1 is used for selection of boost frequency.

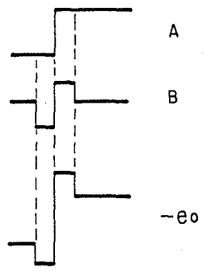


Fig. 3-3-2

Y Delay, Y Buffer Amplifier
Y/C delay time can be matched by delay line DL2 and Y signal is amplified and fed to the next stage.

3-3-2. Color Gain Control Circuit

In this section (R-Y) signal processing is described as below, but (B-Y) signal is processed by the same way as (R-Y) signal.

R-Y Amplifier and Clamping
The R-Y color difference signal from the decoder board is amplified at the amplifier composed of transistors Q21 and Q22 and clamped at the Horizontal Sync by transistors Q23 and IC3.

R-Y Gain Control Amplifier
This is a variable gain control amplifier composed of variable resistor element of IC4 and transistors Q25-Q27. Gain of this amplifier can be controlled by the color gain control voltage at the Pin ⑫ of IC4.

AGC Pulse Generator
Generates the reference pulse for AGC (Automatic Gain Control) of color gain control circuit.

Gain Control Amplifier for AGC Pulse
Circuit is the same as R-Y GAIN CONTROL AMPLIFIER. Gain of this amplifier is controlled by the voltage at pin ⑧ of IC4.

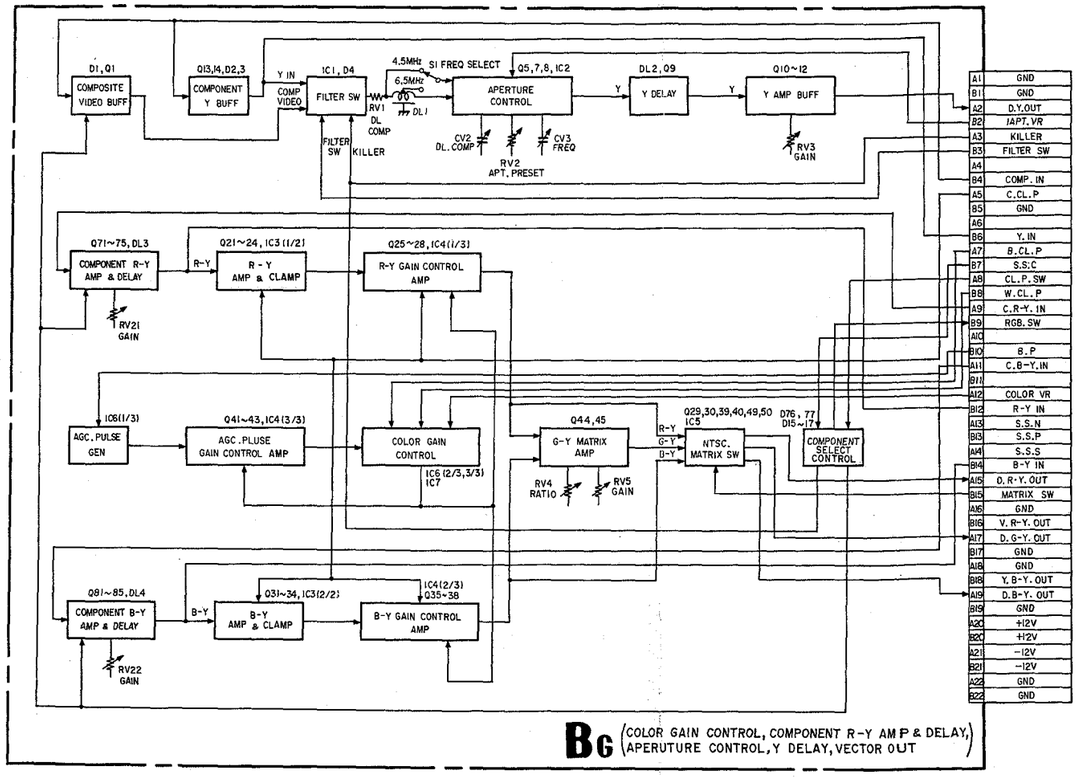
Color Gain Control
AGC pulse, which is output signal of Gain control amplifier for AGC pulse, is clamped by IC6 (2/3) and is made sampling by IC6 (3/3). Amplitude of AGC pulse and DC voltage supplied from CHORMA control on the front panel are compared and matched by IC7 (1/2) with controlling the above gain control ampliier.
This control voltage is supplied to the control terminals of R-Y and B-Y gain control amplifiers and controls color gain.

3-3-3. G-Y MATRIX amplifier
G-Y signal is obtained by matrixing R-Y signal and B-Y signal with the amplifier composed of transistors Q44 and Q45.

3-3-4. NTSC MATRIX SW
NTSC MATRIX mode operation is obtained by the matrix circuit composed of resistor networks CP14-CP19, transistor Q29, Q30, Q39, Q40, Q49, Q50 and IC5. CP14-CP19 perform matrixing and IC5 works as a switch.

3-3-5. COMPONENT R-Y Amplifier and Delay Circuit
R-Y signal of COMPONENT signal is compensated with amplitude, porality and delay time to match the R-Y signal of decoder output.

BLOCK DIAGRAM OF BG BOARD



3-4. BH BOARD

3-4-1. Switching Circuit Between Y (Luminance) Signal, Color Difference Signal and RGB Signal, AGC Pulse Insertion, Y-C Matrix

Switching Circuit of Y Signal, Crosshatch Signal and SET UP Signal, Buffer

Y Signal, crosshatch signal and SET UP signal are selected by the switcher (IC1 (1/3) (2/3)) and selsected signal is output via buffer Q1.

Switching Circuit or R-Y Signal, Red Signal and SET UP Signal (Same as B-Y, G-Y Signal)

R-Y signal, Red signal, SET UP signal are selected by IC2 (1/3, 2/3) and selected signal is output via buffer Q4.

Y Signal Screening (Same as R-Y, B-Y, and G-Y Signals)

The signal is performed SAMPLE and HOLD (S/H) at the back porch of signal by transistor Q2 and IC5 (2/2). Y screening is performed by replacing S/H output signal, by the original signal. For color difference signals screening is made at the Horizontal Sync portion.

Red Matrix, Blue Only SW, Buffer (Same as Green and Blue)

Red is obtained by Y-C matrix circuit composed of resistor network CP9 from color difference signals.

AGC pulse from pulse generator is inserted into Red signal for contrast control.

IC7 activates by the Blue only SW on the front panel. Blue only SW is used for the display of blue signal as a monochrome picture.

3-4-2. Contrast Control, Brightness Control, Peak Limiter

Red Contrast, and Brightness Control Amplifier (Same as Green and Blue)

This is a variable gain control amplifier composed of variable resistor element IC101 and transistor Q102 and Q103. By controlling the voltage at pin ④ of IC101, contrast control is performed, and brightness control is done by controlling the bias voltage of transistor Q102.

Red Limiter (Same as Green and Blue)

When excess input signal comes in, amplitude is limitted by the limitter composed of transistors Q104 and Q105.

Red Contrast Control

AGC pulse inserted in Red signal is clamped by transistor Q107 and sampled by transistor Q108.

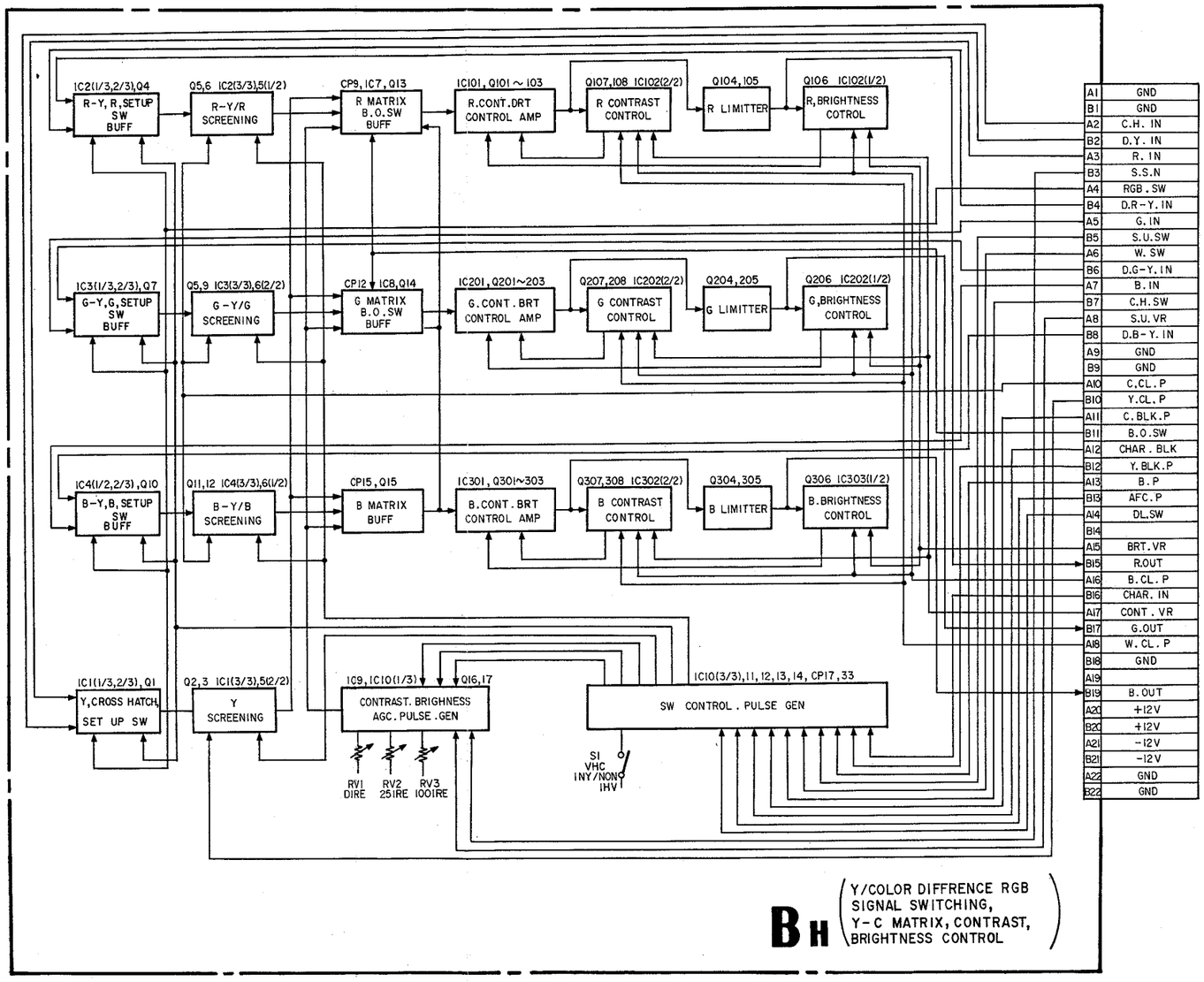
Amplitude of above AGC pulse is compared with the reference voltage applied from CONTRAST control on the front panel in IC102 (2/2).

Contrast control is performed by controlling the gain of Red contrast brightness control amplifier so that these voltages may match.

Red Brightness Control (Same as Green and Blue)

The black level of Red signal is performed SAMPLE and HOLD (S/H) by transistor Q106. This S/H voltage is compared with the reference voltage applied from Brightness control on the front panel in IC102 (1/2). Brightness control is performed by controlling the bias of Red contrast Brightness control amplifier so that these voltages may match.

BLOCK DIAGRAM OF BH BOARD



3-5. BV1 BOARD (BVM-2811 ONLY)

S/P Converter

D-1 serial signal (270 MHz) input is converted into parallel signal through IC101 (IC201) and output at ECL level.

Cable driver

The signal performed cable loss compensation through IC101 (IC201) is output as the active throughout via the amplifier circuit composed of Q101 to 103 (Q201 to 203).

ECL/TTL Conversion

The Channel signal (ECL level) selected by the setting of input channel is input to ECL/TTL converter (IC8, 9 and 10) to convert into TTL level.

D-1 Decoder

Parallel D-1 signal input is converted into Y/R-Y/B-Y digital signals through IC11 (D-1 decoder) to output.

Composite sync generator

Timing pulse for sync signal is generated with H (horizontal period) and F (field period) signals output from D-1 decoder (IC11) as a reference.

3-6. BV2 BOARD (BVM-2811 ONLY)

3-6-1. Buffer, and Buffer and Delay Circuit

Digital Y/R-Y/B-Y signals input are latched, Y signal is delayed through the delay circuit in order to meet timing as against R-Y/B-Y signals.

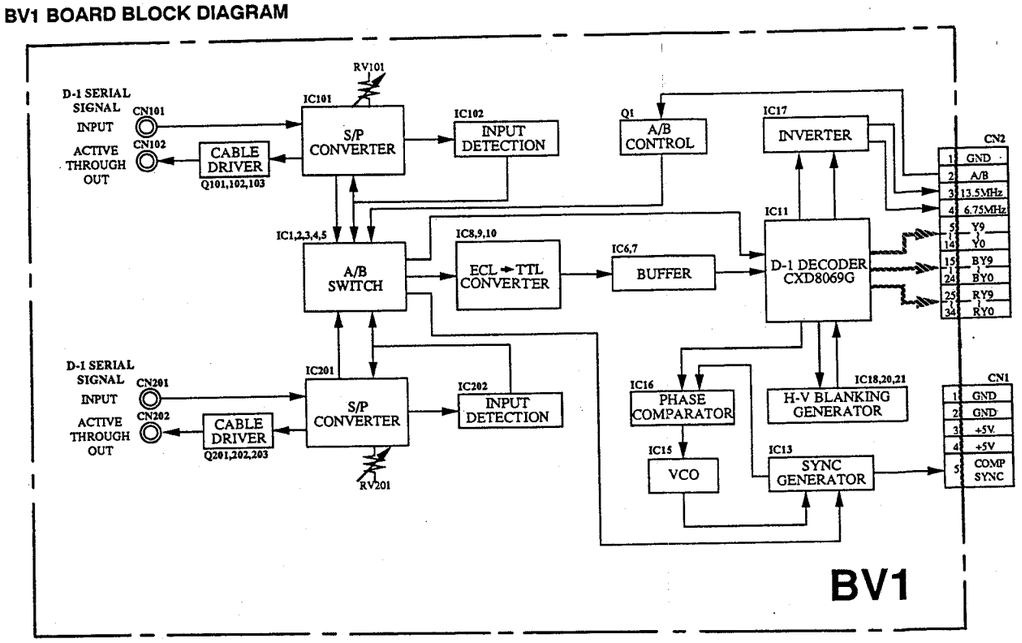
D/A Converter

Digital Y/R-Y/B-Y signals are converted into analog signals by DAC (IC101, 201 and 301), and bandwidth is restricted by L.P.F.

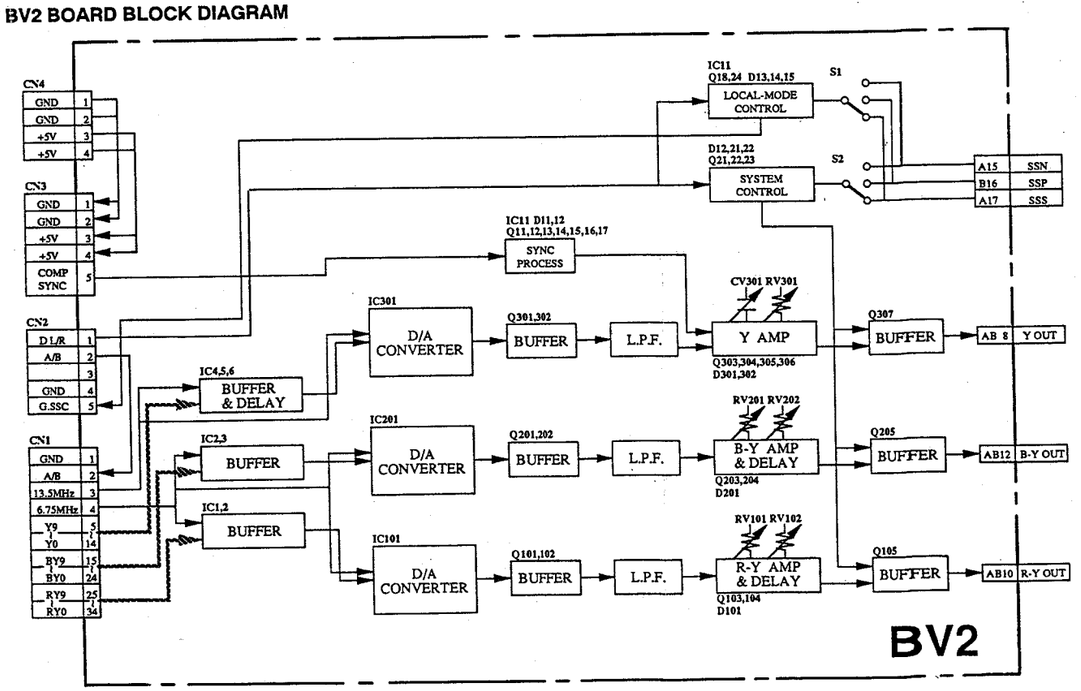
3-6-2. Y Amplifier, and R-Y/B-Y Amplifiers and Delay Circuit

The gain of Y/R-Y/B-Y signals converted into analog signals and the delay time is adjusted. Further, sync signal is added to Y signal so as to generate composite Y signal.

BV1 BOARD BLOCK DIAGRAM



BV2 BOARD BLOCK DIAGRAM



3-7. BI BOARD

3-7-1. Red Screen SW, AGC Pulse Insertion (Same as Green and Blue)

Red signal can be cut off by RED SCREEN SW on the front panel. Horizontal rate AGC pulse is removed and the reference pulse is inserted in the signal for the GAIN and BIAS adjustment of video output amplifier and for the beam control circuit.

3-7-2. Red Limitter, Gain Bias Control Amplifier

This limitter is used for limiting the excess input level of the signal below 0V DC.

The GAIN/BIAS CONTROL amplifier is composed of variable resistor element and transistors as same as contrast control amplifier' (See section of BH board)

3-7-3. Red Feedback Amplifier, Red Gain Control Red Bias Control Circuit

RED FEEDBACK amplifier inverts the phase of the signal derived from VIDEO OUTPUT amplifier via NF BUFF (Negative Feedback Buffer) in BK board.

The BIAS of VIDEO OUTPUT AMPLIFIER controlled by RED BIAS CONTROL circuit so that the black level of inverted signal may be 0V DC.

(This time, black level of VIDEO OUTPUT will be –90V DC.)

RED GAIN CONTROL circuit controls the gain of VIDEO OUTPUT AMPLIFIER so that the level of the reference pulse may match to the voltage at pin ③ of IC103.

(When GAIN control (RED) in the drawer is turned, the level of the reference pulse inserted in section 1 changes. And amplitude (Gain) of Red signal changes so that the amplitude of the reference pulse derived from RED FEEDBACK amplifier may be maintained constant by GAIN CONTROL circuit.)

3-7-4. Red Cathode Current Detection, Red G1 Control Circuit (I-V Conversion)

Refer to the BK board section of beam control circuit

3-7-5. ABL Detector, Drive Control, Over Drive

The reference level of GAIN CONTROL circuit is controlled by ABL detector and DRIVE CONTROL so that the cathode current of CRT exceeds the predetermined (Preset) value to prevent damage of CRT. OVER DRIVE circuit lights up the OVER LOAD LED on the front panel for warning.

3-7-6. G2 Control Circuit

Circuit diagram of G2 control circuit is shown in Fig. 3-7-1.

The signal for G1 BIAS control is fed to base of the transistor Q11 from RED G1 BIAS control circuit. (Same as G and B)

Only one of the highest voltages among the base voltages of transistors Q11 to Q13 is turned on and is compared with the reference voltage of base voltage Q14.

And this circuit drives transistor Q105 located in PA board so that Transistor Q105 in PA board drives G2 voltage for adjusting cut off level of CRT.

Base voltage of transistor Q14 (refernce voltage) is set so that the voltage of Black level at G1 electrode may be –120V DC and maintain EKco (cut off voltage) –120V constant.

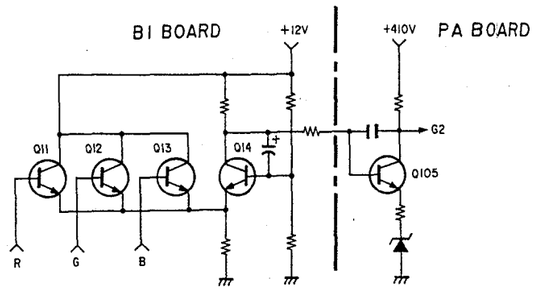
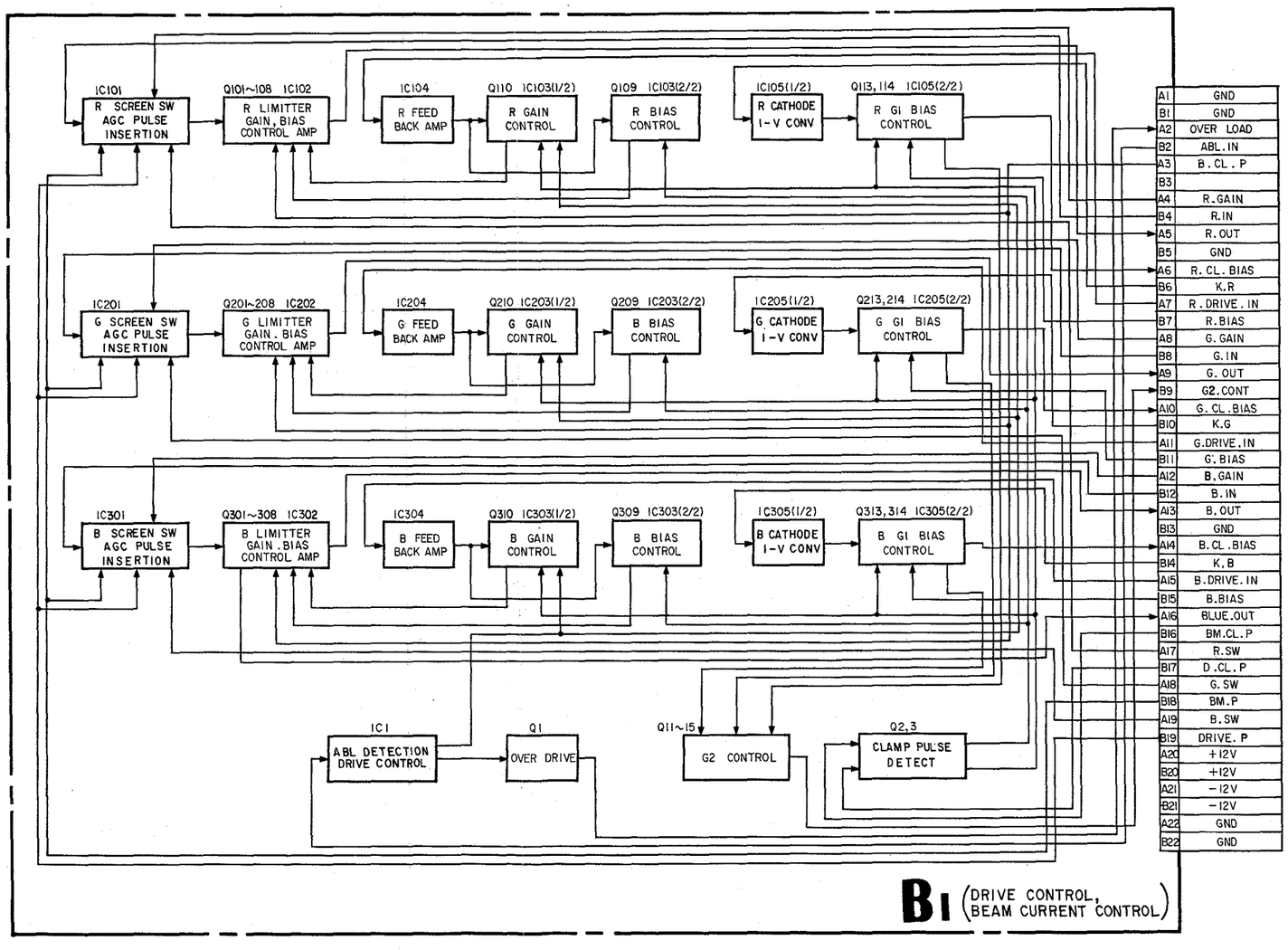


Fig. 3-7-1.

BLOCK DIAGRAM OF BI BOARD



3-8. SYNC PROCESSOR, PULSE GENERATOR (BJ BOARD)

3-8-1. 1H Pulse Processing

The composite sync is separated from incoming signal at BA board. And 1H sync is made by separating V sync and equalizing pulse from composite sync.
Also H sync which has constant pulse width is made from 1H sync.

3-8-2. 2fH Multivibrator

This circuit generates 2fH rate pulse from H rate flyback pulse.

3-8-3. Vertical Counter

The 2fH rate pulse is counted down to generate Vertical rate trigger pulse for vertical deflection circuit.
When there is no incoming signal, trigger pulse is generated by vertical counter (384H).
When there is incoming signal with V sync, this counter circuit is reset by V sync and generates trigger pulse synchronized with V sync.
Also in order to increase stability of vertical scanning, noise gating process is made during V sync period.

3-8-4. V Sync and Delay

V sync and V BLANKING pulses are generated by output trigger pulse from vertical counter.
And when V DELAY SW on the front panel is selected ON, these pulses are generated in a V/2 delayed position relative to the V sync position of incoming signal.

3-8-5. Crosshatch Generator

Internal crosshatch signal is made as follows.
The vertical lines are generated by approx. 18fH rate pulses synchronized with flyback pulse.
And flyback pulse is counted down to generate horizontal lines.

3-8-6. Burst Gate Pulse, Y-CLAMP Pulse, C-CLAMP Pulse Generator

The Burst Gate Pulse (B.G.P.), clamp pulse for luminance signal (Y.CL.P) and clamp pulse for color difference signal (C.CL.P) are generated from 1H sync via LCR network and transistors.

3-8-7. Picture Set Up Pulse Generator

This is the gate pulse generator for picture set-up function, and consists of mono multipliers.

3-8-8. Split, Y Blanking, C Blanking Pulse Generator

Y BLANKING pulse (Y BLK P) and C BLANKING pulse (C BLK P) are generated. These pulses are used for the purpose of DC restoration of color difference signal, Y signal and RGB signal. DC restoration is made by inserting the black reference signal during blanking period in the signal. Also C.BLK. pulse is mixed with vertical rate blanking signals for SPLIT display and for B/W display.

3-8-9. Horizontal Rate AGC and Clamp Pulse Generator

COLOR GAIN control, CONTRAST control and BRIGHTNESS control are stabilized by insertion of reference signal and using feedback circuit. Horizontal rate BLACK pulse (B.P), BLACK CLAMP pulse (B.CL.P) and WHITE CLAMP pulse (W.CLP) are generated here.

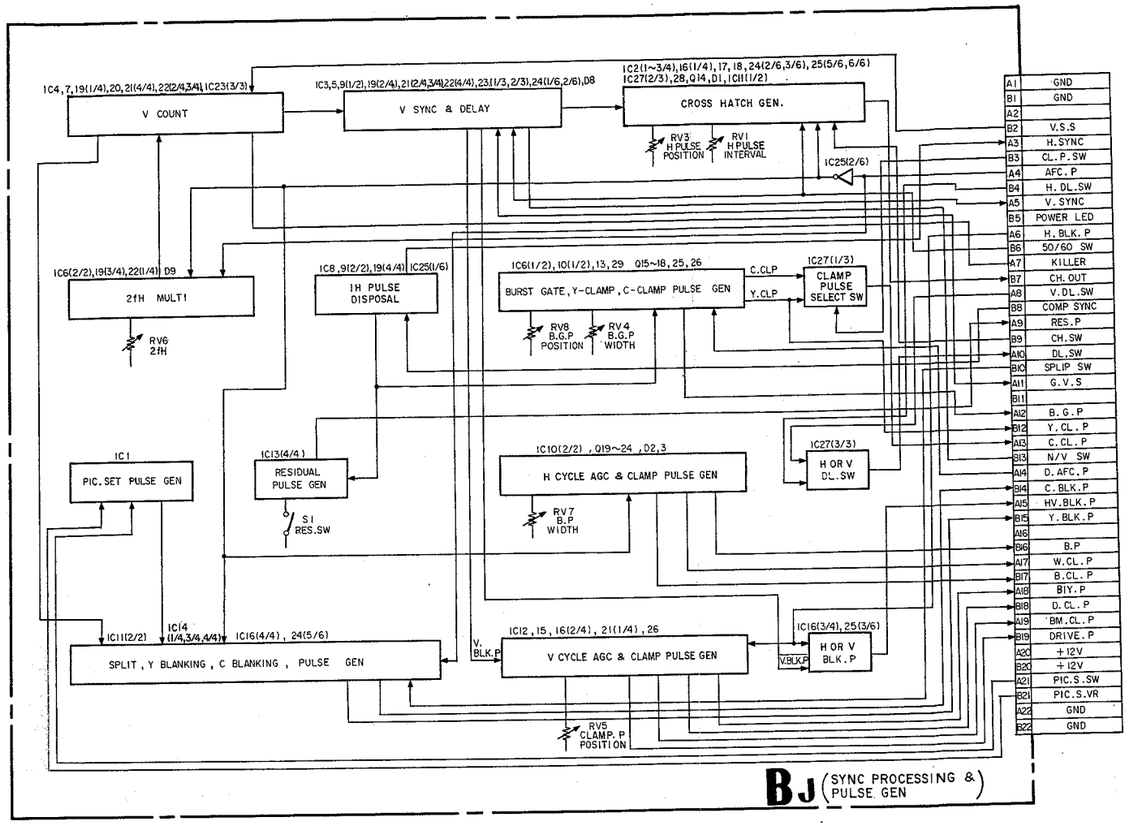
3-8-10. Vertical Rate AGC and Clamp Pulse Generator

In this model, BEAM CONTROL circuit is used for high stability in white balance.
The reference signal is inserted in the signal for gain control circuit in video output amplifier and for beam control circuit. Vertical rate pulses are used for this purpose.
Vertical rate BEAM PULSE (BM.P) DRIVE PULSE (DRIVE.P) and BEAM CLAMP PULSE (BM.CL.P) are generated here.

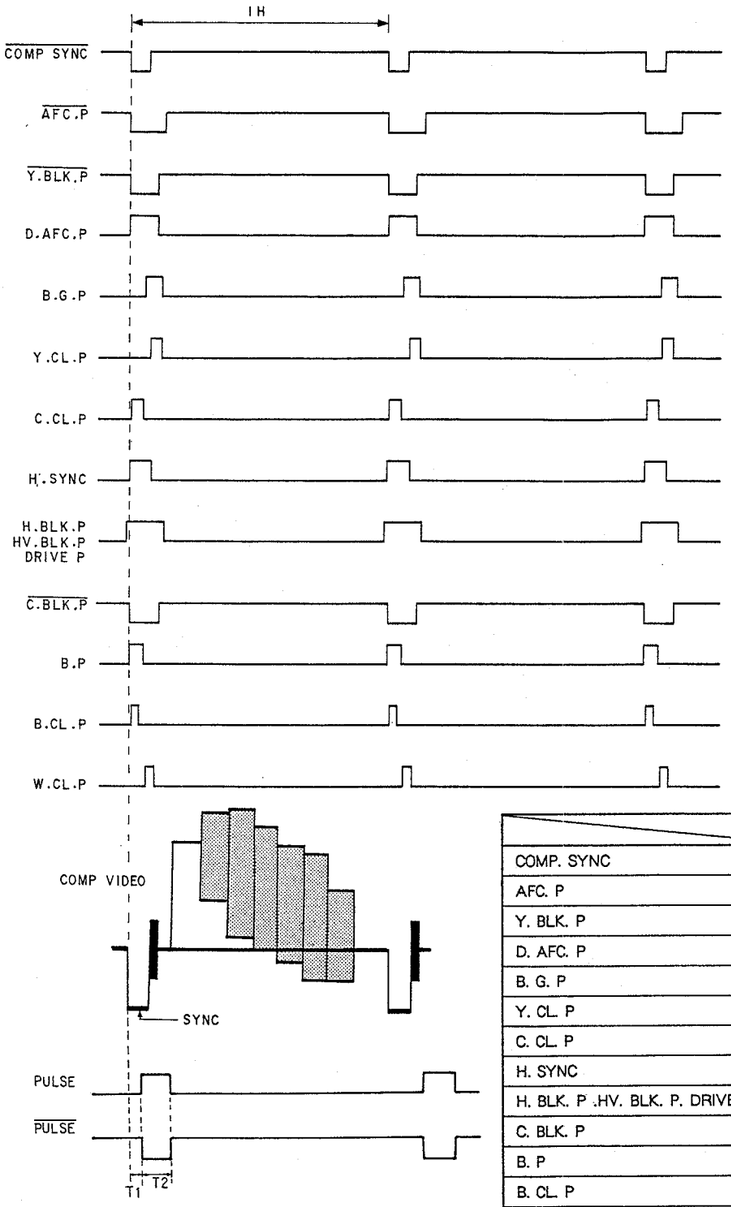
3-8-11. Others

Black reference is determined at the position of clampling in black reference insertion circuit for both color difference signal and RGB signal. Accordingly C.CL.P is used as clamp pulse for color difference signal processing and Y.CL.P is for RGB signal.
CLAMP PULSE SELECTION SW switches C.CL.P or Y.CL.P to the clamp pulse for the insertion of black reference.

BLOCK DIAGRAM OF BJ BOARD



TIMING CHART OF MAJOR PULSE (BJ BOARD)



	T1 (μs)	T2 (μs)
COMP. SYNC	0.4	4.8
AFC. P	0.4	9.0
Y. BLK. P	0.5	7.2
D. AFC. P	0.6	7.2
B. G. P	4.7	4.1
Y. CL. P	5.9	2.6
C. CL. P	1.3	3.0
H. SYNC	0.6	5.5
H. BLK. P .HV. BLK. P. DRIVE. P	− 0.3	9.0
C. BLK. P	0.5	7.2
B. P	0.5	3.5
B. CL. P	1.1	1.8
W. CL. P	4.4	1.8

Fig. 3-8-1.

FIELD 1 VERTICAL BLANKING

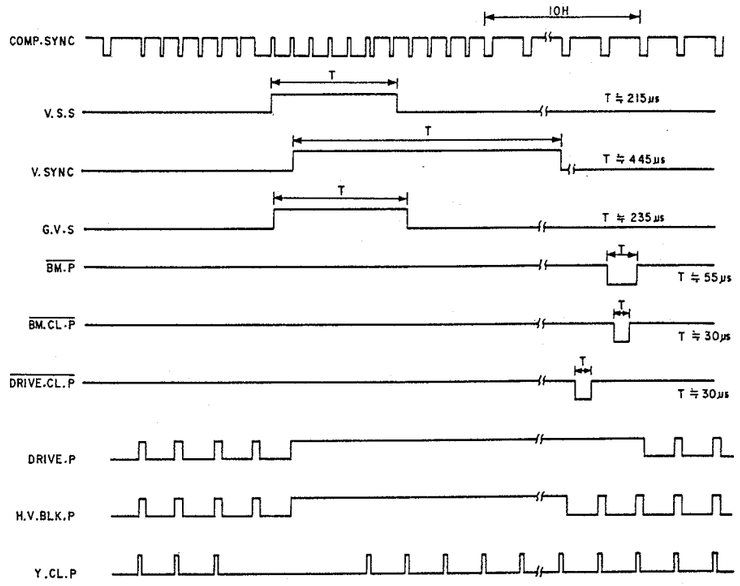


Fig. 3-8-3.

FIELD 2 VERTICAL BLANKING

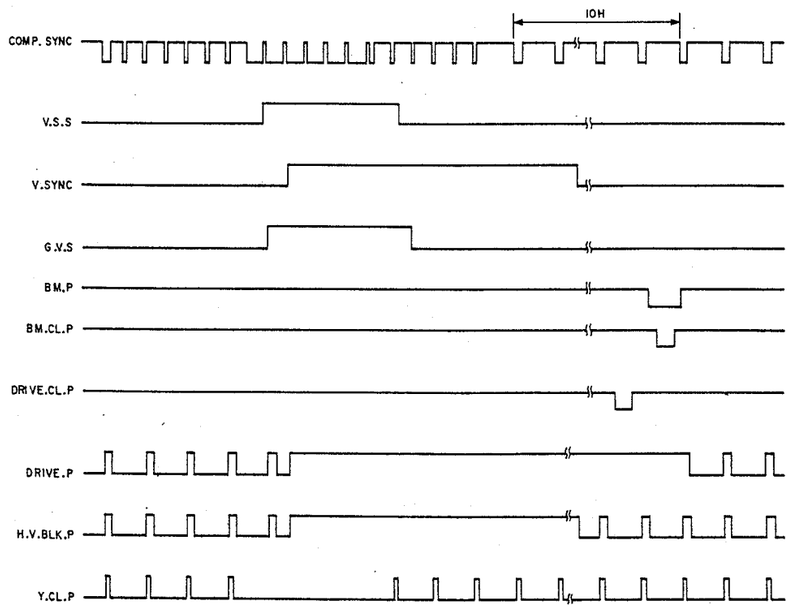


Fig. 3-8-3.

3-9. BK BOARD

Following are described about Red channel. Green and Blue channel are the same.

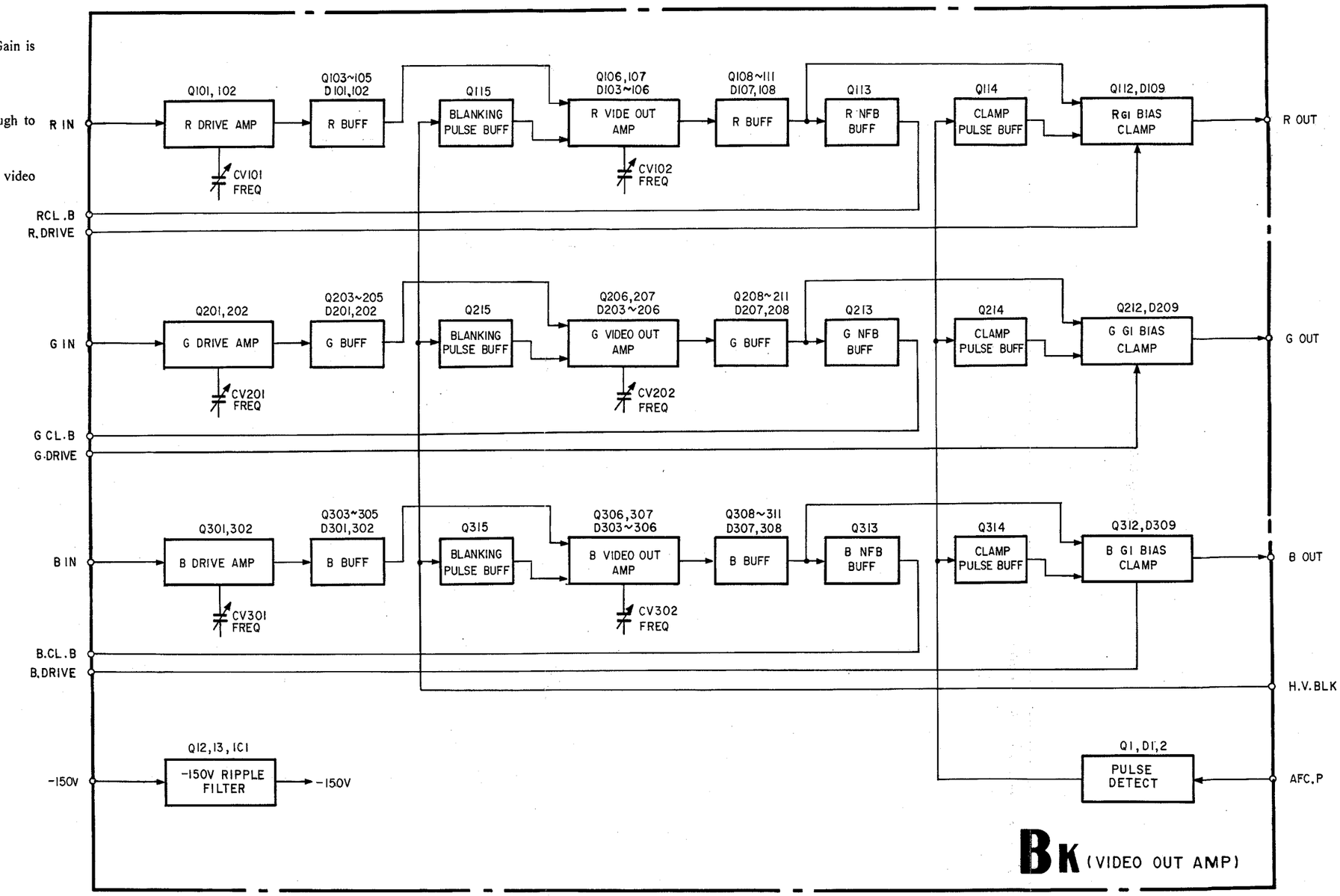
3-9-1. Red Drive Amplifier, Red Buffer

This circuit drives final stage of video output amplifier. Gain is approx. 2.

3-9-2. Red Video Output Amplifier and Buffer

This is the final state amplifier to obtain amplitude enough to drive G1 of CRT.
Gain is approx. 14.
Also in this amplifier, BLANKING pulse is mixed with video signal.

BLOCK DIAGRAM OF BK BOARD



3-10. BEAM CONTROL CIRCUIT (BI, BK BOARDS) (Same as Green and Blue)

Block diagram is shown in Fig. 3-10-1.

3-10-1. Detection of Cathode Current and I-V Conversion (BI BOARD)

Cathode current is detected as a voltage by using IC105 (1/2).

3-10-2. Red G1 Bias Control (BI BOARD)

BMP is inserted in the signal during vertical blanking in BI board.
This BMP is detected as a cathode current and sampled by BM CLP applied to FET Q113.
This bias control circuit controls the base voltage of transistor Q114 so that converted voltage from cathode current and the reference voltage may match.

3-10-3. Red G1 Bias Clamp Circuit (BK BOARD)

Video output signal is clamped at the voltage of collector of transistor Q114 in BI board by using transistor Q112.

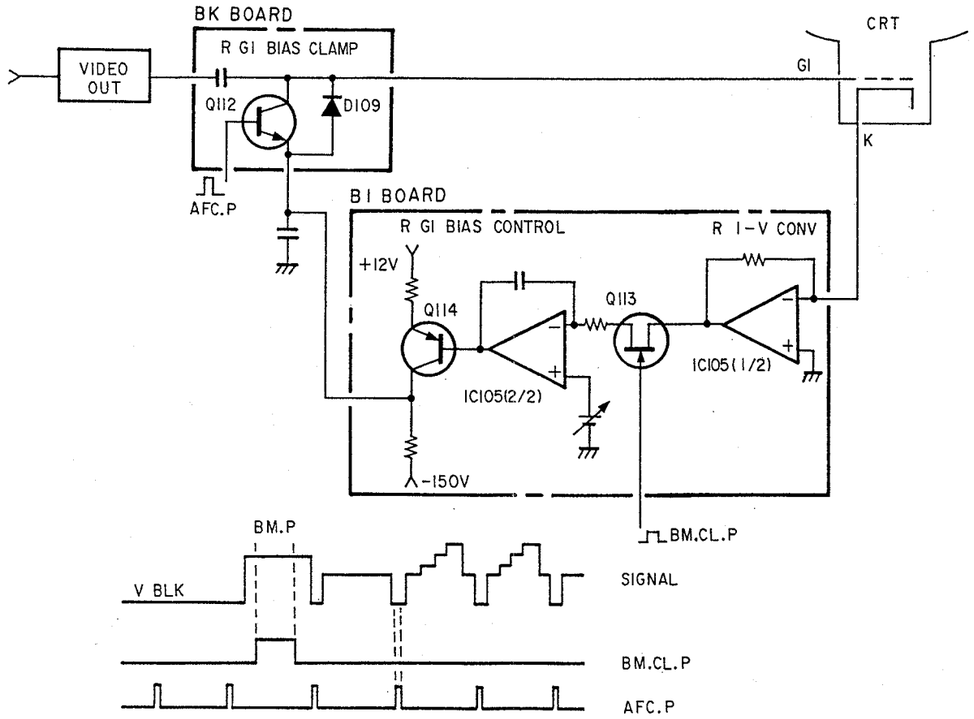


Fig. 3-10-1.

(BVM-2811 ONLY)
3-11. NTSC COMB FILTER (BT BOARD)

3-11-1. 3 Line Dynamic Comb Filter (Fig. 3-11-1.)

The fed video signal is band limited by a low-pass filter. (This signal is hereinafter referred to as the 0H signal.) The 0H signal becomes the signal which is 1H (63.556 μsec) delayed by the 1H delay circuit (1H delayed signal) and the signal which is 1H further delayed by the 1H delay circuit (2H delayed signal).
The 0H, 1H, and 2H signals are band limited by the respective band-pass filters (center frequency: fs) for delay of λ/2(140 nsec). The 1H signal is further λ/2 delayed. The 0H+λ/2, 1H, 1H+λ/2, 1H+λ and 2H+λ/2 (Ⓐ, Ⓑ, Ⓒ, Ⓓ and Ⓔ of the block diagram) at each point are separated into chroma signals only by the correlation circuit (IC501).
The luminance signal is separated with the chroma signal subtracted from the 1H signal.

3-11-2. 2 Line Simple Comb Filter

The chroma signal is separated with the 0H+λ/2 and 1H+λ/2 signal subtracted, and the luminance signal is separated by subtracting the chroma signal from the 0H signal.

3-11-3. 1H Delay Circuit (Fig. 3-11-2.)

The 1H delay circuit consists of two CCD delay lines.
These CCD delay lines are used in parallel to attain 1H (63.556 μsec) signal delay.

3-11-4. Band-pass Filter (Fig. 3-11-3.)

The band-pass filter consists of a delay line. It performs band limiting with the group delay kept constant.

3-11-5. Correlation Circuit (IC501) (Fig. 3-11-4.)

The correlation circuit consists of a limiter circuit which is common to emitters to perform separation of a chroma signal.

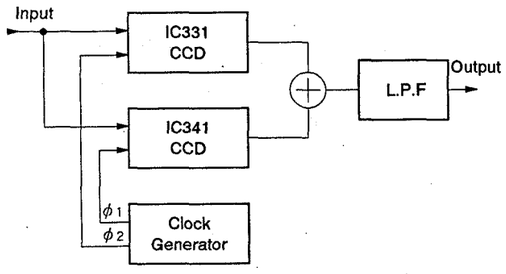


Fig. 3-11-2.

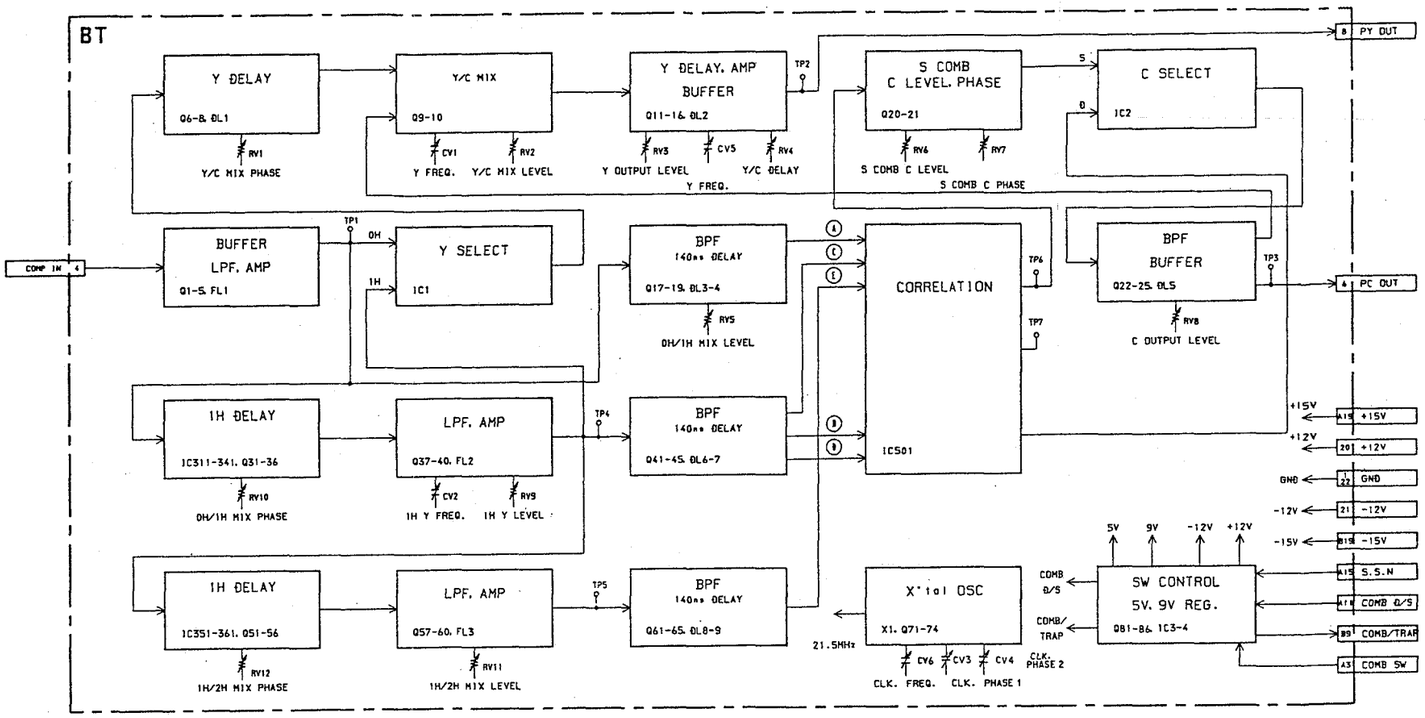


Fig. 3-11-1.

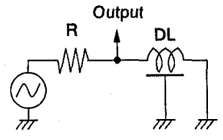
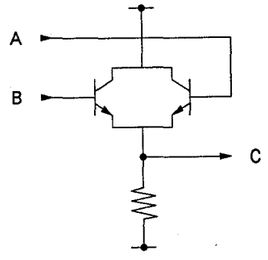


Fig. 3-11-3.



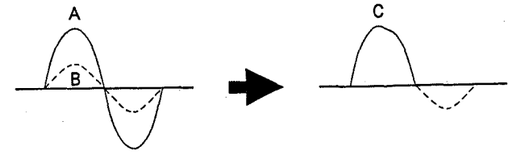


Fig. 3-11-4.

(BVM-3011P ONLY)
3-12. PAL DEMODULATOR, Y TRAP CIRCUIT (BD BOARD)

The composite video signal (PAL) supplied from BA board is fed to transistor Q1 (buffer), then is supplied to the 4.43 MHz trap circuit with Y signal and to band pass filter with chrominance signal.

3-12-1. Chroma Band Pass Filter

The composite video signal obtained from at the emitter of transistor Q1 is fed to the Band pass filter composed or resistor R12, capacitor C7, C8 inductor L3 and transistor Q5.
The center frequency of this filter is adjusted to the subcarrier frequency (4.43 MHz) by L3, and chrominance signal is derived from Q5.

3-12-2. Residual SW Circuit

The chrominance signal derived at transistor Q5 is fed to analog switcher IC2.
When switch S1 on BJ board is set to ON position, residual pulse which has almost same phase as H sync is fed to control terminal of analog switcher (pin ③ of IC2) and screening is performed during H sync period.
When switch S1 on BJ board is set to OFF position. Low level signal (0V DC) is fed to control terminal and screening action is not performed. Thus residual switch circuit does not activate.
When there is residual subcarrier in the video signal, clamp level of color difference signal changes by turning switch S1 ON/OFF and therefore residual subcarrier can be checked on the picture as a color shift.

3-12-3. Chroma Amplifier Circuit

The chrominance signal from residual switch circuit (IC2 pin ④) is fed to chroma amplifier circuit (Q19, Q36).
After the chroma signal is amplified by the inversion amplifier (gain: 1X), it is voltage divided by resistors R400 and R314 and then input to the R-Y input terminal (IC1, pin (3)) and B-Y input terminal (IC1, pin (2)) of the following demodulator circuit via the buffer (Q38).

3-12-4. Phase Control Circuit

The chrominance signal from residual switch is also fed to phase control circuit (Q6, Q7, Q8, Q9, D12).
In this circuit, a variable capacitance diode (D10) is used to control the phase of color burst signal.
Anode voltage of D10 is ampplied by variable resistor RV8 and preset adjustment of phase is made by this variable resistor.
When the PHASE control on the right side of the front panel is turned, DC level of phase control signal (board terminal A13) changes and this phase control signal is fed to the cathode of D10 via analog switcher (IC5). In this way, Burst phase of chrominance signal is controlled according to the DC level of the phase control signal.
When PAL-D is selected with the PAL switch inside the right side drawer, between pins ③ and ④ of IC5 becomes conductive and phase control becomes dependent on RV7, disabling the Phase Control of the right side front panel.

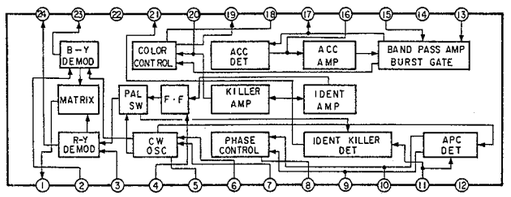


Fig. 3-12-1.

Analog switcher IC5 (1/3) activates to make short-circuit between input terminal pin ③ or ⑤ and output terminal pin ④, only when COLOR STANDARD SELECTOR in the right side of drawer is selected to PAL and otherwise pin ⑤ kept open circuit.
As above phase controlled chrominance signal is derived from collector of transistor Q9 and burst signal in this signal is gated by IC6. The gated burst signal is fed to the burst input terminal pin ⑪ of demodulator IC1.

3-12-5. PAL Demodulator

Block diagram of IC used for PAL demodulator is shown in Fig. 3-12-1. This IC is designed for use of NTSC demodulator.
When chrominance signal is fed to pin ② and pin ③, color burst signal to pin ⑪ and Burst Gate Pulse (B.G.P.) to pin ⑬, R-Y and B-Y color difference signals are obtained at output terminals pin ㉓ and pin ㉔.
The demodulation axes of this demodulator are R-Y axis and B-Y axis. Variable capacitor CV1 is adjusted so that the phase angles between them are 90°.
Local oscillator (4.43 MHz) is formed by CW oscillator in IC1 connected to the terminal pin ⑤, ⑥, ⑦, ⑧ and external circuit.
The variable capacitor CV2 is adjusted so that the free run frequency may be subcarrier frequency 4.433619 MHz.
Also APC (Automatic Phase Control) circuit is formed by APC section in IC1 connected to the terminal pin ⑨ and ⑩ local oscillator is controlled by APC circuit.
The color difference signals demodulated by this IC are fed to low pass filter, where high frequency component is removed, then R-Y and B-Y color difference signals are obtained.

3-12-6. PAL-D Matrix and PAL S/D Switching Circuit

This circuit is further divided into circuits for the R-Y and B-Y signals, but the operation of both circuits is the same. So only the R-Y one will be explained.
R-Y signals input from the demodulator circuit are input to Q20 (BUFF) and Q21 (BUFF).
The signals input to Q21 are then input to pin ② of the analog switcher (IC5). When PAL S has been selected, between pins ② and ⑮ becomes conductive and the signals are supplied to the following circuit via Q33 (BUFF).
The signals input to Q20 are formed by IC7 and Q18.
Bias is controlled by a clamp circuit and is input to pin ⑮ of the 1H delay line (IC3). The DC level of the input is adjusted to the optimum value by using RV9.
IC3, driven by the 10.64 MHz clock signal generated by the clock generator circuit configured with XZ, Q34 and Q35, delays the input signal by 1H cycle and outputs it from pin ⑪.
The high frequency component of the signal thus output is removed by the low-pass filter configured with Q22 and Q23, after which the signal is input to the following PAL-D matrix circuit.
The PAL-D matrix circuit is configured with R100, R101 and Q24. The signal that was not delayed is input through R100 while the 1H delayed signal is input through R101 at a ratio of 1/2.
The PAL-D signal added to the base of Q24 is obtained from its emitter. The signal obtained from the Q24 emitter is input to pin ① of IC5. When PAL-D is selected, between pins ① and ⑮ becomes conductive and the signal is supplied to the following circuit via Q33 (BUFF).

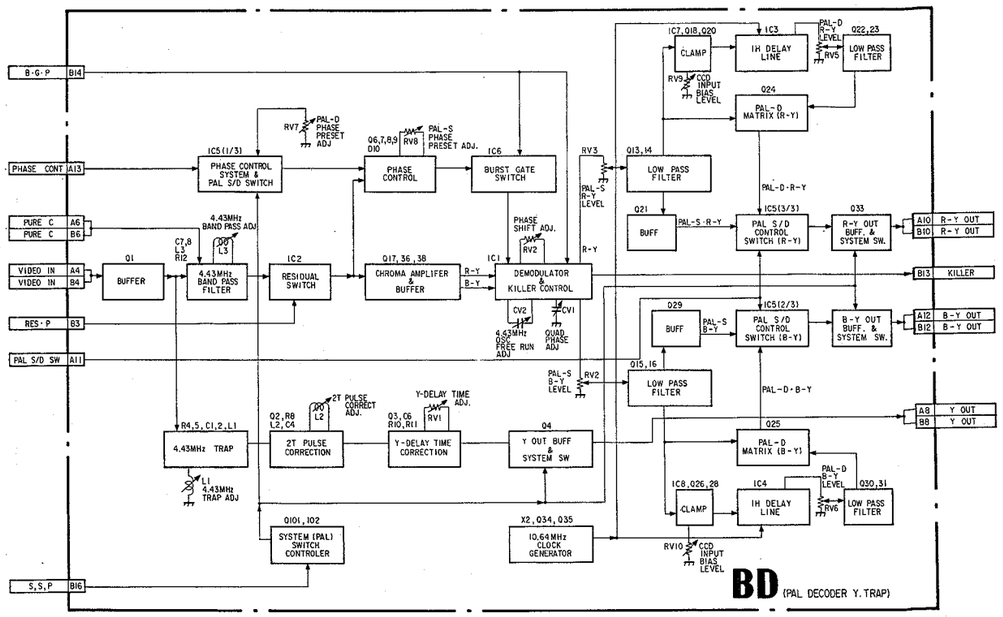
3-12-7. 4.43 MHz Trap Circuit, Phase Compensation, Y Delay Correction Circuit

The composite video signal from the emitter of transistor Q1 is fed to 4.43 MHz trap circuit composed of resistor R5, R6, R7, capacitor C1, C2 and inductor L1.
Adjustment of L1 is made so that the resonance frequency of this trap circuit should be subcarrier frequency.
Y (Luminance) signal removed subcarrier is obtained at output terminal of the trap circuit and is fed to the phase compensation circuit. (Transistor Q2, resistor R8, R9, R10, inductor L2 capacitor C4)
This circuit compensates phase delay of the signal at high frequency due to the trap circuit.
Y signal compensated phase delay is fed to Y-delay circuit. In this circuit Luminance/Chrominance time error is compensated by delay line.

3-12-8. Color Standard Selector

When PAL system is not selected by the COLOR STANDARD SELECTOR in the right side drawer, transistor Q101, Q102 are cut off and ± 12V line power source is not supplied to the demodulator circuit.

BLOCK DIAGRAM OF BD (PAL) BOARD



(BVM-2811 ONLY)
3-13. NTSC DEMODULATOR, Y TRAP CIRCUIT (BC BOARD)

The composite video signal (NTSC) supplied from BA board is fed to transistor Q1 (buffer), then is supplied to the 3.58 MHz trap circuit with Y signal and to band pass filter with chrominance signal.

3-13-1. Chroma Band Pass Filter

The composite video signal obtained from at the emitter of transistor Q1 is fed to the Band pass filter composed or resistor R18, capacitor C7, C8 inductor L3 and transistor Q5.
The center frequency of this filter is adjusted to the subcarrier frequency (3.58 MHz) by L3, and chrominance signal is derived from Q5.
This circuit selects comb filter (BB board) mode or notch filter mode by a push of button on the front panel. When comb filter mode is selected, comb switch circuit composed of transistor Q103 and Q104 activates and base voltage of Q5 goes down to –12V and Q15 is cut off and then chrominance signal (Pure C) is provided from comb filter circuit to IC2.

3-13-2. Residual SW Circuit

The chrominance signal derived at transistor Q5 is fed to analog switcher IC2 (Pin ⑦).
When switch S1 on BJ board is set to ON position, residual pulse which has almost same phase as H sync is fed to control terminal of analog switcher (pin ③ of IC2) and screening is performed during H sync period.
When switch S1 on BJ board is set to OFF position. Low level signal (0V DC) is fed to control terminal and screening action is not performed. Thus residual switch circuit does not activate.
When there is residual subcarrier in the video signal, clamp level of color difference signal changes by turning switch S1 ON/OFF and therefore residual subcarrier can be checked on the picture as a color shift.

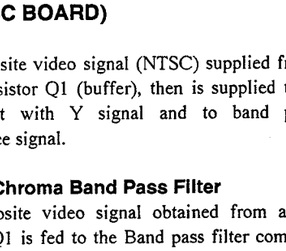


Fig. 3-13-1.

3-13-3. Chroma Amplifier Circuit

The level of chrominance signal from residual switch circuit (IC2 pin ④) is divided by resistor R85 and R86 and is fed to chroma amplifier circuit (Q6, Q7, Q8).
The gain of this amplifier is amost 1 and this amplifier has 2 outputs. They are non-inverted signal and inverted signal.
Non-inverted signal is fed to R-Y input terminal (IC1 pin ③) of demodulator and inverted signal to B-Y input terminal (IC1 pin ②).

3-13-4. Phase Control Circuit

The chrominance signal from residual switch is also fed to phase control circuit (Q9, Q10, Q11, Q12, D2).
In this circuit, a variable capacitance diode (D2) is used to control the phase of color burst signal.
Anode voltage of D2 is applied by variable resistor RV2 and preset adjustment of phase is made by this variable resistor.
When the PHASE control on the right side of the front panel is turned, DC level of phase control signal (board terminal A13) changes and this phase control signal is fed to the cathode of D2 via analog switcher (IC2). In this way, Burst phase of chrominance signal is controlled according to the DC level of the phase control signal.
Analog switcher IC3 (2/3) activates to make short-circuit between input terminal pin ⑬ and output terminal pin ⑭, only when COLOR STANDARD SELECTOR in the right side of drawer is selected to NTSC and otherwise pin ⑬ kept open circuit.
As above phase controlled chrominance signal is derived from emitter of transistor Q12 and burst signal in this signal is gated by IC3 (1/3). The gated burst signal is fed to the burst input terminal pin ⑪ of demodulator IC1.

3-13-5. NTSC Demodulator

Block diagram of IC1 used for NTSC demodulator is shown in Fig. 3-13-1. This IC is designed for use of NTSC demodulator.
When chrominance signal is fed to pin ①, ② and pin ③, color burst signal to pin ⑪ and Burst Gate Pulse (B.G.P.) to pin ⑬, R-Y and B-Y color difference signals are obtained at output terminals pin ㉓ and pin ㉔.
The demodulation axes of this demodulator are R-Y axis and B-Y axis. Variable capacitor CV1 is adjusted so that the phase angles between them are 90°.
Local oscillator (3.58 MHz) is formed by CW oscillator in IC1 connected to the terminal pin ⑤, ⑥, ⑦, ⑧ and external circuit.
The variable capacitor CV2 is adjusted so that the free run frequency may be subcarrier frequency 3.579545 MHz.
Also APC (Automatic Phase Control) circuit is formed by APC section in IC1 connected to the terminal pin ⑨ and ⑩ local oscillator is controlled by APC circuit.
The color difference signals demodulated by this IC are fed to low pass filter, where high frequency component is removed, then R-Y and B-Y color difference signals are obtained.

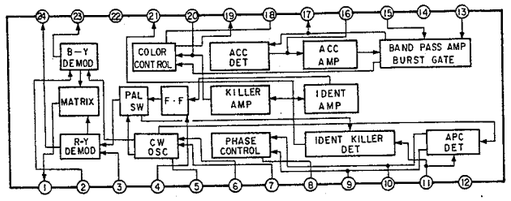


Fig. 3-13-2.

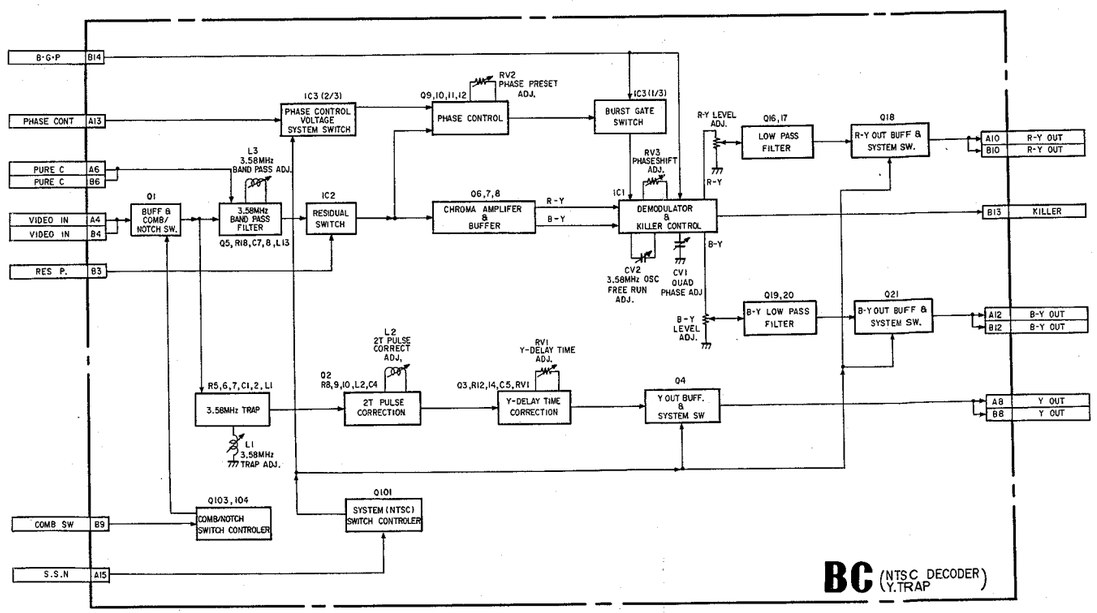
3-13-6. 3.58 MHz Trap Circuit, Phase Compensation, Y Delay Correction Circuit

The composite video signal from the emitter of transistor Q1 is fed to 3.58 MHz trap circuit composed of resistor R5, R6, R7, capacitor C1 and inductor L1.
Adjustment of L1 is made so that the resonance frequency of this trap circuit should be subcarrier frequency.
Y (Luminance) signal removed subcarrier is obtained at output terminal of the trap circuit and is fed to the phase compensation circuit. (Transistor Q2, resistor R8, R9, R10, inductor L2 capacitor C4)
This circuit compensates phase delay of the signal at high frequency due to the trap circuit.
Y signal compensated phase delay is fed to Y-delay circuit. In this circuit Luminance/Chrominance time error is compensated by delay line.

3-13-7. Color Standard Selector

When NTSC system is not selected by the COLOR STANDARD SELECTOR in the right side drawer, transistor Q101 is cut off and ± 12V line power source is not supplied to the demodulator circuit.

BLOCK DIAGRAM OF BC BOARD



3-14. VERTICAL DEFLECTION OUTPUT CIRCUIT CONVERGENCE OUTPUT CIRCUIT (EB BOARD)

3-14-1. Vertical Deflection Output

Vertical Deflection Output amplifier is composed of DC coupled SEPP (single Ended Push Pull) amplifier (Q1 to Q5) and boost up circuit.

This burst up circuit containes transistors Q7 and Q8 to reduce power consumption by applying the voltage to the output transistor during vertical retrace time.

Both vertical rate sawtooth waveform and correction waveform for top and bottom pincushion are generated in DA board and fed to output amplifier. Vertical centering is performed by changing DC level of vertical rate sawtooth because Vertical DY (Deflection Yoke) is connected to output amplifier directly.

3-14-2. Convergence Yoke Output Circuit

CY (Convergence Yoke) is used for adjustment of misconvergence of vertical direction. This CY is driven by SEPP (single Ended Push Pull) amplifier (Q9 to Q13) and connected directly. Correction waveform is provided from DB board.

3-14-3. DCT (Dynamic Convergence Transformer) Output Circuit

This circuit is used for adjustment of misconvergence for Horizontal direction.

DCT is also driven by SEPP amplifier (Q14 to Q19) and AC coupled to it.

Correction waveform is provided to the primary of DCT and transferred to the secondary windings, output voltage of secondary windings is applied to CV electrode of CRT (picture tube) and performed convergence adjustment.

Circuit diagram shown in Fig. 3-14-1. is the theory of basic DCT circuit.

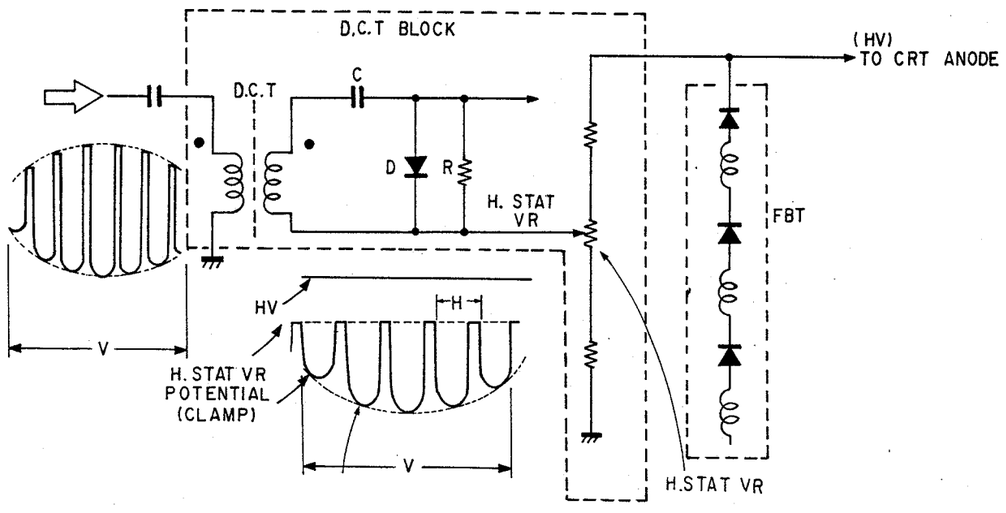
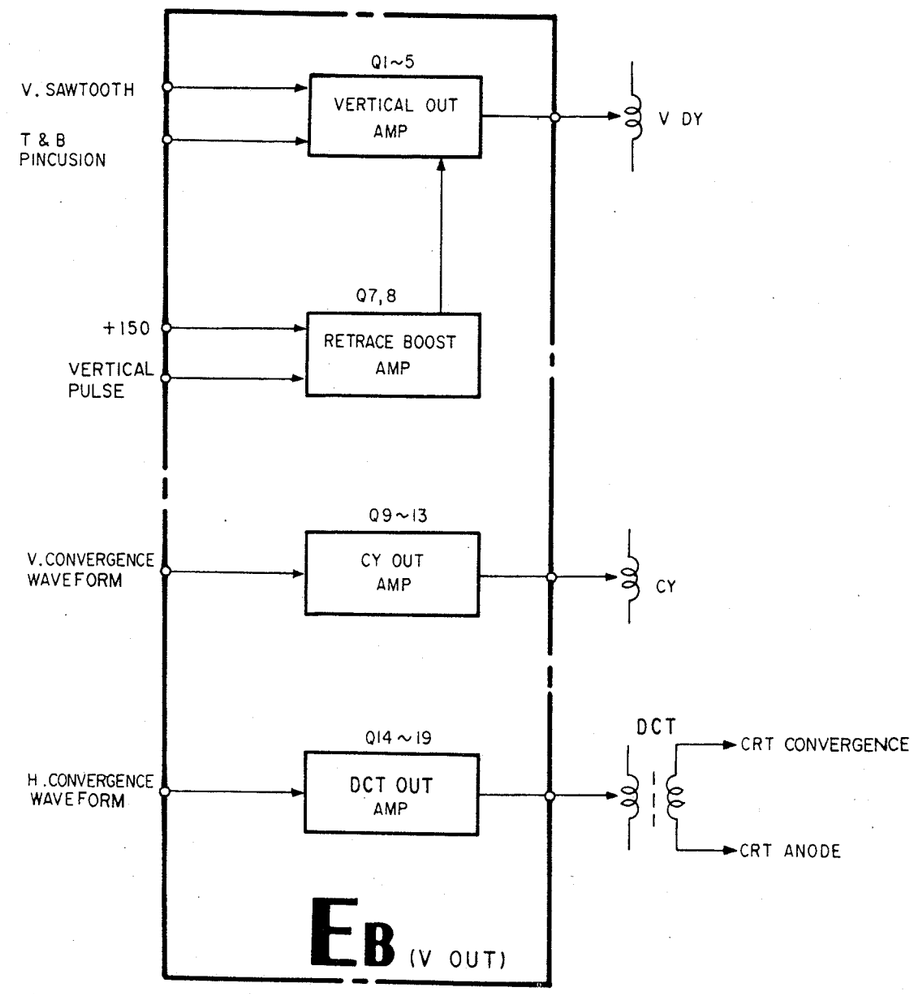


Fig. 3-14-1.

BLOCK DIAGRAM OF EB BOARD



3-15. POWER SUPPLY CIRCUIT (GA, GB BOARDS)

3-15-1. AC Power Supply, Rectifier Circuit

Voltage selector located at the rear side of the unit should be selected to the local line voltage (AC 100/120V or 220/240V).
In case of AC 100/120V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as double multiple rectifier.
See Fig. 3-15-1.
In case of AC 220/240V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as a full-wave rectifier.
See Fig. 3-15-2.

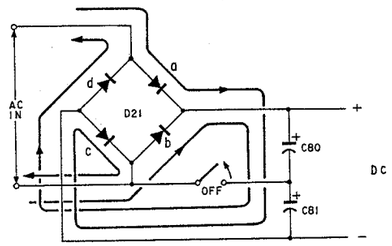


Fig. 3-15-1.

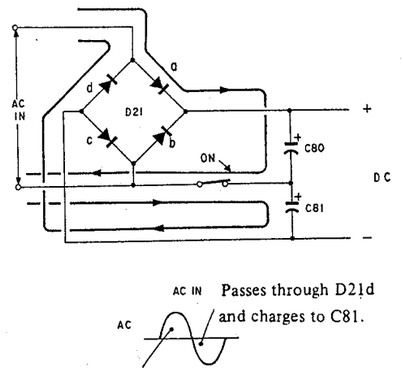


Fig. 3-15-2.

3-15-2. Degauss Circuit

There are 2 posistors (PTH1, PTH2) in the degaussing circuit. One is used for AC 100/120V operation, the other is for AC 220/240V operation, these posistors are switched by voltage selector.
This degaussing circuit is turned ON and OFF by using Relay (RY1) automatically.
When power is turned ON, Automatic degaussing starts to work and a few seconds later stops automatically.
Also Manual degaussing is available if necessary after a few minutes power is turned on when posistor (PTH1 or PTH2) gets cool down. This manual degaussing is operated by a push of button (Degauss Switch) at the left of the front panel.

When degaussing circuit starts to work, Q11 transistor turns on by time constant circuit composed of resistors R88, 91 and capacitor C74. Q11 drives Q12 transistor. Relay (RY1) is driven by Q12. Time constant circuit keeps degaussing circuit to activate for several seconds until degaussing is finished.

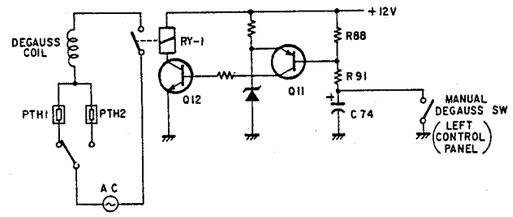


Fig. 3-15-3.

3-15-3. Starter Circuit

Blocking oscillator composed of IC1 and T4 starts working by turning the power on. DC output voltage of the rectifying-circuit, D7 and C57 in T4 secondary circuit, is supplied to the regulator-circuit IC (IC2 and IC3) with line voltage of 50 to 70V AC (at 110/120V AC) by function of the start-rectifying circuit (Q7, Q8, Q9). And the regulator circuit starts working and as +15V-line workds, the voltage is supplied to the regulator-circuit IC through D20. At the same time, a voltage for stopping the blocking-oscillator operation is provided to IC1 from the primary winding ⑥ – ⑦ of the switching regulator transformer SRT2.

3-15-4. Switching Regulator Circuit

Block diagram is shown in Fig. 3-15-4. This is half bridge type of switching regulator in this model.

Following Description Is the Theory of Half-Bridge Switching Regulator.

DC voltage EIN rectified from AC voltage in AC power rectifier section is divided by capacitor C1 and C2. C1 and C2 have almost same value. Q1 (contains 2 transistors) operates as a switch driven by PWM modulated pulse via T2 (Drive Transformer). Switching current flows through primary windings of T1 (SRT) by switching transistor Q1 via T3 (Current Transformer).
Thus output voltages are generated at secondary windings of T1.

Practical Circuit Used in this Model

There are 2 switching regulators in this power supply. One is for low voltage power supply, ± 15V, ± 18V and +5V. The other is for high voltage ± 150V power supply.
Low voltage are generated by IC2, T1, T2, T3 and Q1.
High voltage are generated by IC3, T6, T7 and Q2.
Refer to block diagram.
Current Transformer T3 and T7 detects excess current in transistor Q1 and Q2 for the protection of damage.

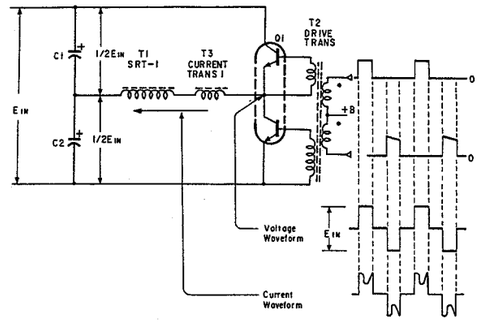
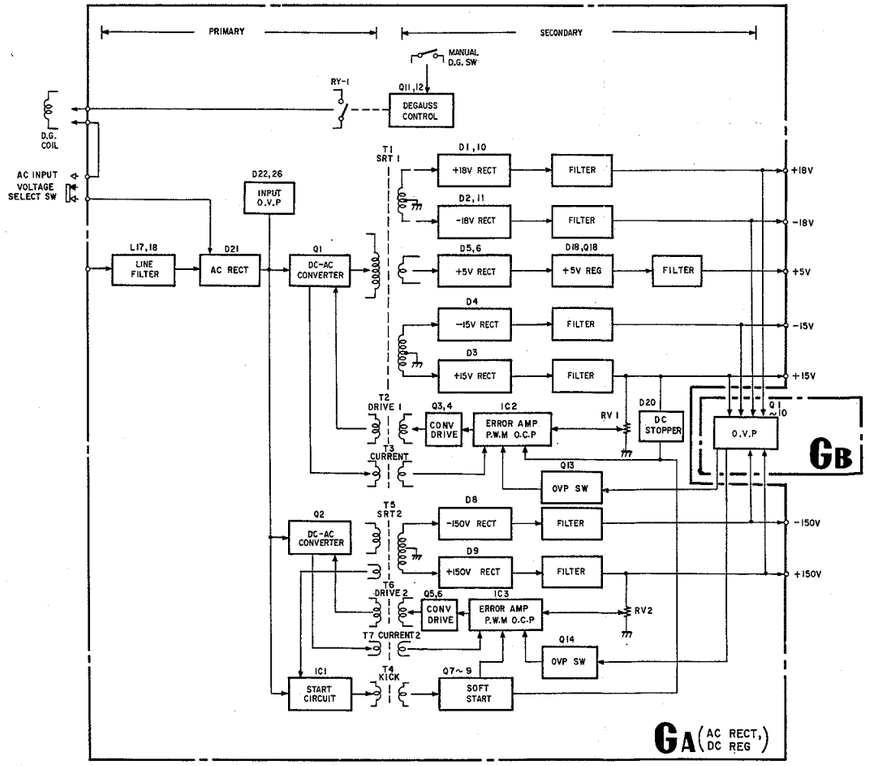


Fig. 3-15-4.

3-15-5. Over Voltage Protector

GB board, mounted on the GA board, is a protection circuit that when the output voltage surpasses the rated value for some reason, it makes short-circuit the CT (frequency-determination capacitor) on IC2 and IC3 and the regulator stops its operation to protect the circuits.

BLOCK DIAGRAM OF GA, GB BOARDS



3-16. CONVERGENCE CIRCUIT (DB, DC BOARDS, DCT BLOCK)

3-16-1. General Description

This is a simple explanation of the convergence system in Super fine Trinitron picture tube used in this model.

The Deflection Yoke (DY) used in this model generates an almost uniform magnetic field in order to get fine beam spot size. Accordingly basically misconvergence of horizontal direction as shown in Fig. 3-16-1. is generated on the picture screen.

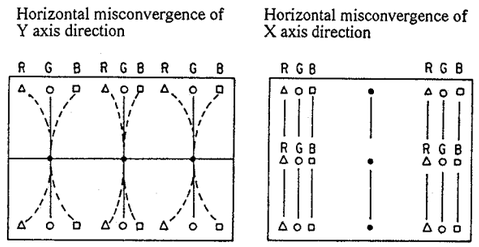

Horizontal misconvergence of Y axis direction
Horizontal misconvergence of X axis direction
R G B R G B R G B
R G B
R G B
R G B
R G B

Fig. 3-16-1.

3-16-2. Static Electrorical Convergence System

Trinitron system has a unique static convergence system.

The structure of electric gun is shown in Fig. 3-16-2.

G6 is the electrode for convergence. Static electrorical convergence control can be used. In this system beam spot deterioration is less than that of the electromagnetic system.

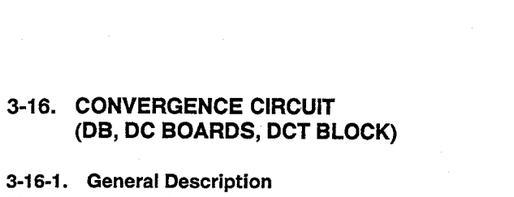


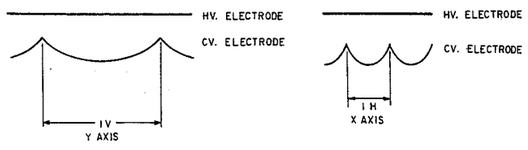
Fig. 3-16-2.

3-16-3. Convergence Correction Circuit (Horizontal Convergence)

Misconvergence of horizontal direction on Y axis is corrected by applying vertical rate parabola waveform to the convergence plate (G6).

And misconvergence of horizontal direction is corrected by applying horizontal rate parabola waveform to G6.

See Fig. 3-16-3.



HORIZONTAL MISCONVERGENCE

Fig. 3-16-3.

In this model, transformer is used to supply correction voltage to the G6 electrode for the horizontal direction misconvergence. In the secondary of the transformer peak clamp circuit using diode is applied so that both the vertical rate parabola waveform and horizontal rate parabola waveform are mixed and supplied to CV electrode. See Fig. 3-16-4.

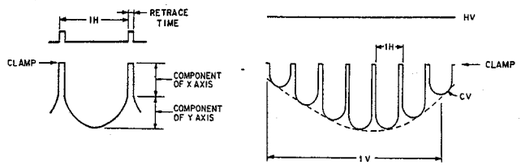


Fig. 3-16-4.

The correction waveforms are generated in DB board and output amplifier is located in EB board.

3-16-4. Vertical Convergence

Theoretically there is no misconvergence of Vertical direction since electric gun is aligned in line. But there is a slight amount of misconvergence due to the variations of CRT and DY and also due to the terrestial magnetism.

There are also 2 kinds of misconvergence of vertical direction on X axis and Y axis as same as horizontal direction.

Misconvergence of Vertical direction on X axis is corrected by CY (convergence yoke).

Fig. 3-16-5. shows the CRT neck as seen from the rear side.

Red beam and Blue beam are moved to the vertical direction differentially by CY. As Green beam is at the center of the CRT neck, it is not affected by the magnetic field of CY due to the cancellation of the magnetic field at the center of the neck.

Misconvergence of vertical direction on Y axis is corrected by NTC (Neck Twist Coil).

A Neck Twist Coil is wound around the center of electrode G2 to G3 (See Fig. 3-16-5.) for the correction. Theortically, as the RED and Blue beams have HI component (They are opposite direction) as seen in Fig. 3-16-5., they move to the vertical direction due to the magnetic field generated by NTC.

However as magnetic field of the NTC is the parallel to the Green beam, Green beam is not affected.

Correction waveform generator is located in DB board, output amplifier of CY is in EB board and output amplifier of NTC is in DB board.

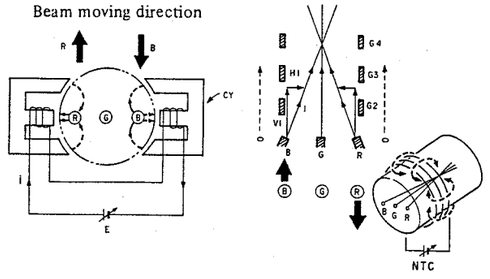
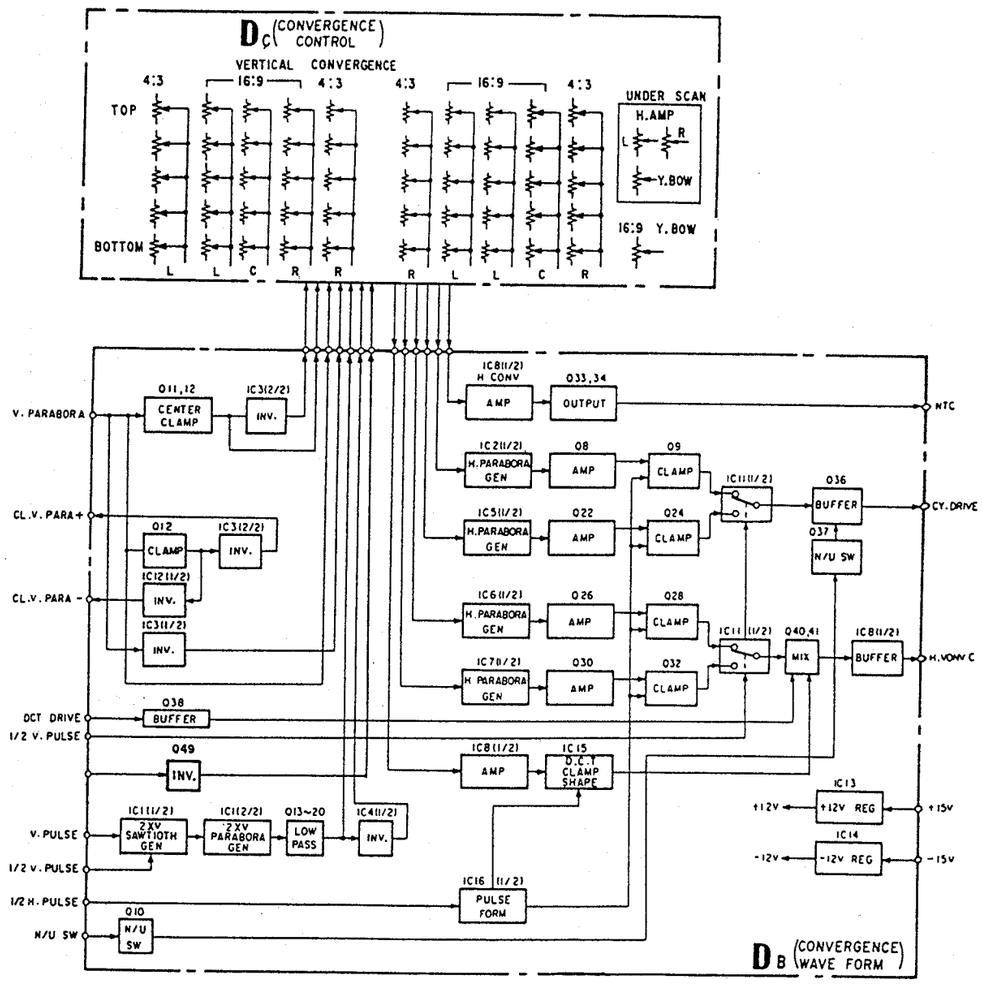


Fig. 3-16-5.

BLOCK DIAGRAM OF DB, DC BOARDS



3-16-5. Convergence Correction Waveform Generator (DB BOARD)

This monitor incorporates unique convergence circuit which can adjust convergence at 15 positions of the picture screen, each 15 potentiometers for horizontal and vertical convergence adjustments are located on the left side of the drawer corresponding to the picture screen.

3-16-6. Horizontal Convergence Correction Waveform Generator

A vertical rate parabola waveform is supplied to the DB board from the DB board and is inverted and switched to make correction waveform.

For the left side of the picture screen, the correction waveform is compounded by adjusting potentiometers RV16 to RV20 on the DC board. This waveform is converted to horizontal rate parabola waveform which level is proportional to the compounded waveform by H parabola generator (IC6, Q25). This is amplified by transistor Q26 and clamped at the center position of the horizontal period by transistor Q28 and IC6. See Fig. 3-16-6.

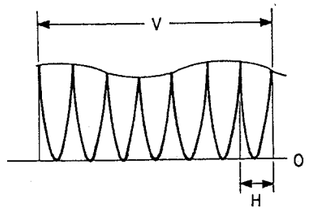


Fig. 3-16-6.

For the right side of the picture screen, the correction waveform is generated by adjusting potentiometers RV26 to RV30 on the DC board as same as the left side of the picture.

These correction waveforms (left and right side) are switched and mixed by analog switcher which activates at 1/2H period as seen in Fig. 3-16-7.

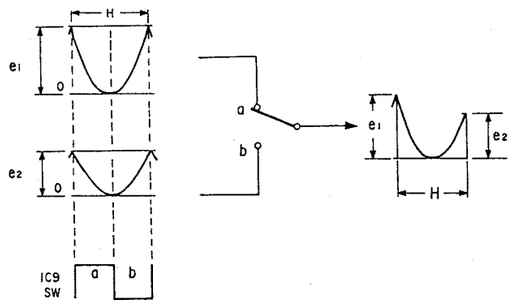


Fig. 3-16-7.

As a result, right side adjustments and left side adjustment can be performed independently of each other.

For the center of the picture screen, vertical parabola waveform is compounded to the correction waveform by adjusting potentiometers RV21 to 25 on the DC board, and converted to horizontal pulse. This means amplitude of horizontal pulse is modulated by vertical parabola. (Q40, Q41) See Fig. 3-16-4.

This modulated pulse is mixed with horizontal parabola for left and right side correction. This mixed waveform is amplified and supplied to convergence plate in CRT via DCT. Thus horizontal convergence is corrected. See Fig. 3-16-8.

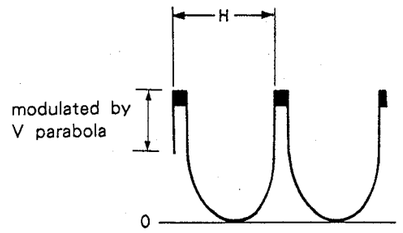


Fig. 3-16-8.

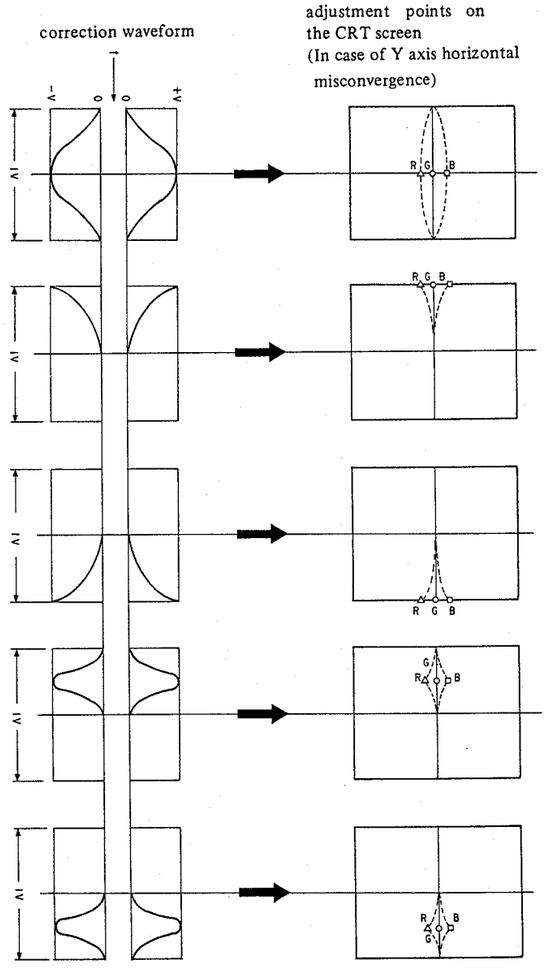


Fig. 3-16-9.

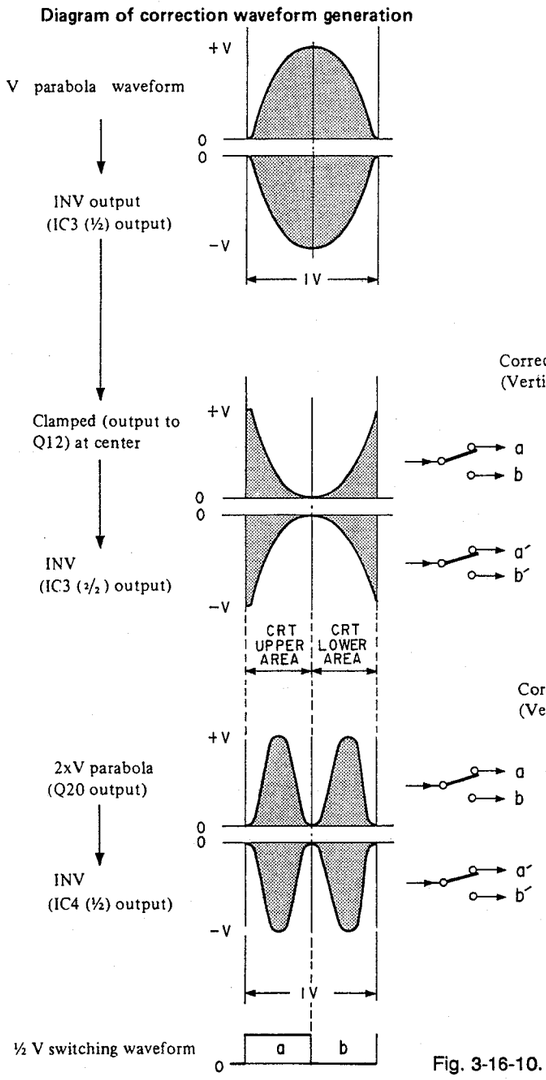
3-16-7. Vertical Conevergence Correction Waveform Generator

For the left and right side of the picture, correction circuit for vertical convergence is same as horizontal correction circuit of left and right side of the picture. The correction waveform is amplified in EB board and supplied to CY.

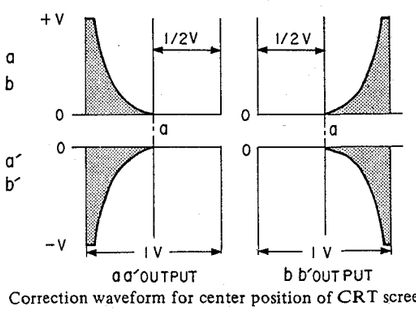
For the center of picture screen, correction waveform is fed to amplifier (IC8 (1/2), Q33, Q34) and supplied to NTC (Neck twist Coil.)

This vertical convergence is performed.

Diagram of correction waveform generation



Correction waveform for top and bottom of the CRT screen
(Vertical rate)



Correction waveform for center position of CRT screen
(Vertical rate)

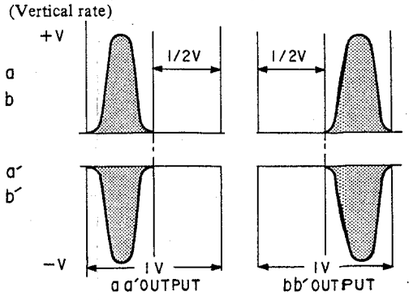


Fig. 3-16-10.

3-17. DEFLECTION CIRCUIT (DA BOARD)

3-17-1. H Delay and Horizontal AFC (Automatic Frequency Control) Circuit

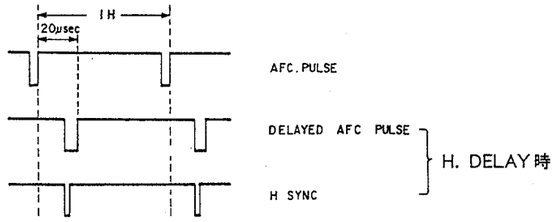
In this model H delay function is performed by delaying H. AFC pulse in the horizontal AFC circuit. (See Fig. 3-17-1.)

H. AFC pulse which is fed from H.O.T. (Horizontal Output transformer) is wave shaped and is delayed about 20 μs by IC1 (2/2).

This delayed pulse is integrated by inductor L1, and capacitor C14, thus sawtooth waveform is obtained and fed to terminal pin ④ of IC4. AFC detection is performed by IC4, Output of AFC detector is fed to control terminal of horizontal oscillator (H.OSC) via low pass filter composed of capacitor C12, C15 and resistor R10.

3 types of AFC mode are selected by changing low pass filter which determines AFC time constant.

AFC time constant circuit is composed of switch S1, resistor R13, R14, R15 and capacitor C17, C18.



Pulse at H delay operation

Fig. 3-17-1.

3-17-2. Horizontal Linearity Correction Circuit

In this model Horizontal Linearity correction is made by applying correction voltage to the Horizontal deflection circuit.

Basically, Linearity correction is made by modulating power source of horizontal output circuit with horizontal sawtooth voltage.

Also So-called "Inside pincushion" correction is performed by applying correction waveform to S correction capacfitor.

This correction waveform is generated by balanced modulator (IC7) with vertical rate parabola waveform. See Fig. 3-17-2.

Horizontal sawtooth waveform is generated by IC5 (1/2) for horizontal linearity correction. Horizontal rate parabola waveform is generated by integration of saw tooth by IC6 (1/2). This parabola waveform is performed balanced modulation by IC7 with vertical rate parabola waveform, horizontal sawtooth and parabola waveform are fed to horizontal linearity output amplifier in EA board. Correction of horizontal linearity correction and inside pincushion correction are performed.

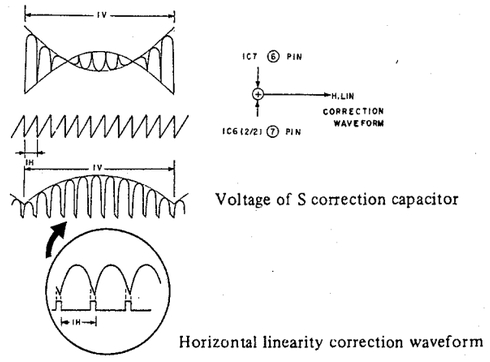


Fig. 3-17-2.

3-17-3. Horizontal Blanking Pulse Generator

Horizontal rate sawtooth waveform generated in H. Linearity circuit is fed to the comparator IC8 (1/2). In this circuit, 1/2H delayed pulse is obtained. This pulse is fed to integrator IC9 (1/2) and 1/2H delayed sawtooth waveform is obtained and this is fed to the comparator IC10 (1/2).

Thus the comparator generates horizontal pulse to make H. Blanking pulse which starts just before the starting edge of the retrace time. Also width of horizontal blanking pulse is determined by JK-FF IC1 (1/2).

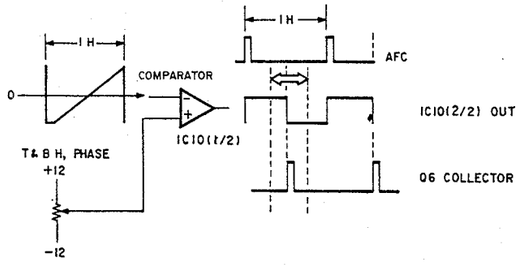


Fig. 3-17-3.

3-17-4. Top & Bottom Pincushion Circuit

Horizontal rate sawtooth waveform generated in H Linearity circuit is also fed to IC10. IC10 generates advanced H pulse for the phase correction because vertical Deflection Yoke works as an integrator at horizontal rate, and deflection current for Top & Bottom pincushion correction is delayed about 1/2H for this reason. See Fig. 3-17-3.

Advanced H pulse is fed to IC11 (1/2) and advanced horizontal sawtooth waveform is generated. It is integrated by IC11 (2/2) and horizontal rate parabola waveform is obtained.

Modulated butterfly waveform for Top & Bottom pincushion correction is obtained by Balanced modulator IC12. In this balanced modulator, horizontal rate parabola waveform is used as a carrier and vertical rate sawtooth waveform is modulated by this carrier. See Fig. 3-17-4.

This correction waveform is fed to vertical deflection output amplifier in EB board.

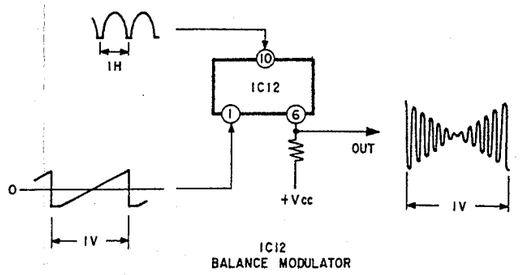


Fig. 3-17-4.

3-17-5. Automatic 50/60 Hz Field Selection Circuit

This model has an automatic vertical field frequency selection circuit so that color systems with different frequencies such as NTSC or PAL and SECAM can be received. IC18 is automatic field frequency detection device and its output switches (IC13) time constant of integrator in vertical deflection circuit.

3-17-6. Scan Mode Selection Circuit

There are 3 modes of scanning in this model: NORMAL SCAN/UNDER SCAN/SET UP SCAN.

There are level adjustments for H1 width, V, height side pincushion and top & bottom pincushion.

Levels of correction waveforms are switched so that these adjustments are made independently for each scanning mode. IC14, IC15 and IC16 activates for this purpose.

3-17-7. Vertical Deflection, Side Pincushion Correction

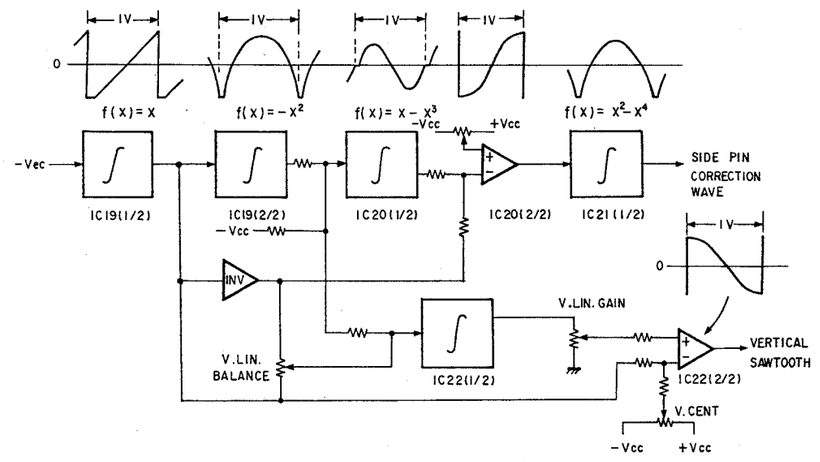
IC19 (1/2) generates vertical rate sawtooth waveform for vertical deflection. V sawtooth waveform is generated by the integrator IC9 (1/2) which is reset by V sync.

Also vertical rate parabola is generated by integrating V. sawtooth waveform by IC9 (2/2).

This V parabola is used for side pincushion correction, and also V. parabola is converted to sine waveform by IC20 (1/2) and is mixed with V parabola waveform. This mixed waveform is used for side pincushion correction and fed to side pincushion output amplifier in EA board.

Vertical drive voltage for vertical deflection is generated by mixing vertical rate sawtooth waveform generated by IC19 (1/2) and sine waveform generated by IC22 (1/2).

This drive waveform is fed to vertical deflection output amplifier. Balance adjustment of vertical linearity correction can be performed by IC22 (1/2) and vertical centering can be adjusted by IC22 (2/2).



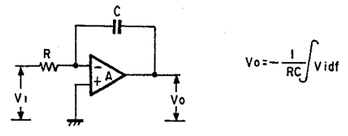
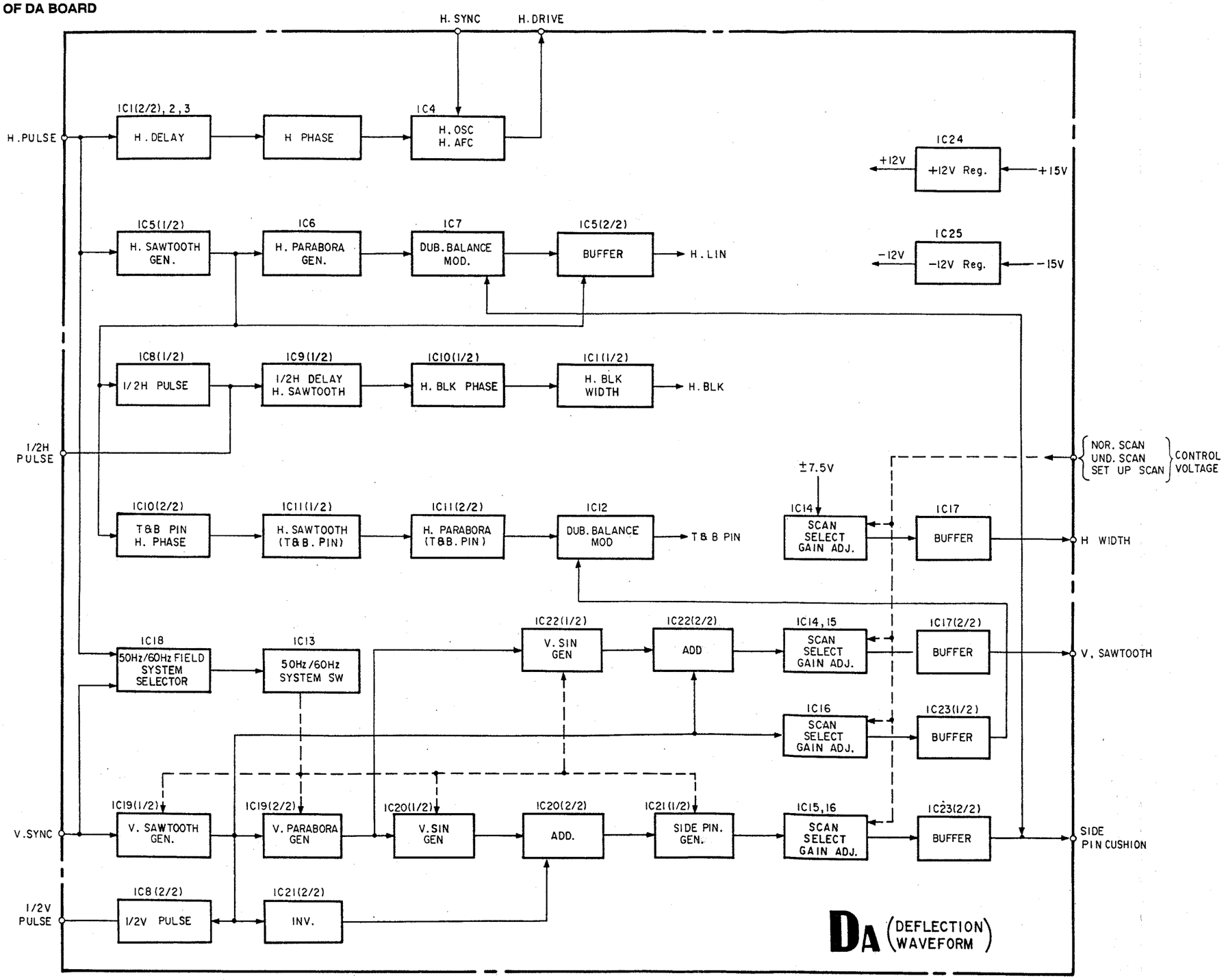


Fig. 3-17-5.

BLOCK DIAGRAM OF DA BOARD



3-18. HORIZONTAL OUTPUT (EA BOARD)

3-18-1. Horizontal Deflection Circuit

Horizontal drive pulse for Horizontal deflection output is made at DA board and is fed to T4 (Horizontal Drive Transformer) via Q13 (H. driver). T4 is driven by Q13 and output pulse of T4 drives Q14 (Horizontal Output Transistor).

To obtain high efficiency in this model, DC-DC converter is used for side pincushion correction, Horizontal Width adjustment and +B Line voltage conversion to the horizontal deflection circuit.

This converted Line voltage is fed to horizontal deflection output circuit via H.O.T (Horizontal Output Transformer). Side pincushion correction and H. width adjustment are made by this DC-DC converter. IC1 contains error amplifier and PWM (Pulse Width Modulator) circuit for DC-DC converter. Side pincushion correction waveform and DC voltage for H. Width adjustment are made in DA board and supplied to error amplifier to control DC-DC converter.

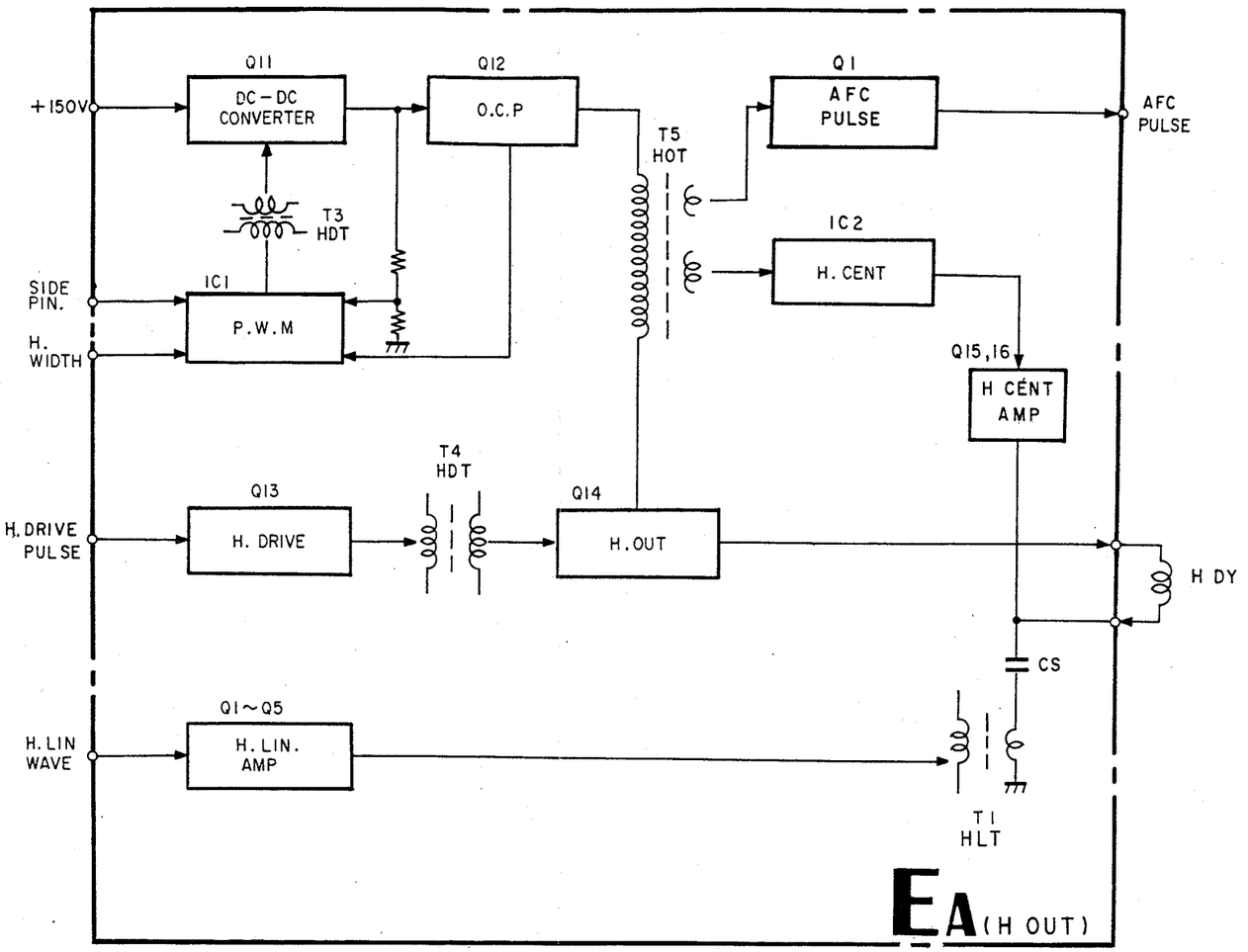
3-18-2. Horizontal Centering Circuit

± low voltages power supply for H centering are made in this circuit from output of secondary windings of T5 (Horizontal Output Transformer). These low voltages are converted to current source for mixing DC current on the deflection current. In this circuit Bow shaped geometry distortion due to the H centering adjustment is adjusted by providing vertical rate parabola waveform current on the H centering current.

3-18-3. Horizontal Linearity Correction Circuit

Waveform for Horizontal Linearity correction made in DA board is fed to SEPP amplifier (Single Ended Push Pull) which are composed of Q1 to Q5 transistors. Output of this amplifier is fed to H deflection circuit (Deflection Yoke) and make correction of H linearity by T1 (Horizontal Linearity Transformer).

BLOCK DIAGRAM OF EA BOARD



3-19. HIGH VOLTAGE REGULATOR (PA BOARD)

This high voltage regulator uses also DC-DC converter so as to reduce power consumption.
The theory of operation of this circuit is as follows.

3-19-1. Detection of High Voltage

High Voltage applied to the CRT anode is converted to the low voltage by DCT block (Dynamic Convergence Transformer). This low voltage is fed to buffer amplifier IC4 (2/2) and compared with external reference voltage in IC1. The DCT contains resistor-network and transformer for convergence adjustment. This resistor-network works as a voltage divider.

3-19-2. PWM Modulator

IC1 works are error amplifier and PWM modulator comparing voltage between high voltage and the reference voltage is amplified and modulated so as to drive Q102 output transistor. Output signal from IC1, which is modulated in PWM, is fed to Q102 via drive transformer. +B line supplied to FBT (Fly Back Transformer) circuit is controlled by switching Q102 output transistor on/off.

3-19-3. Output Circuit

When high voltage drops down, output voltage of DCT also drops as above mentioned. At this time PWM circuit is designed so that the ON period of Q102 output transistor should be longer than high voltage drops down. +B line, switching ON/OFF by Q102, is supplied to converter circuit which drives FBT via LOT (Line Output Transformer).
Amount of collector current of Q103, which drives FBT, depends upon ON period of Q102 because PWM modulator is triggered by H. pulse. Therefore when ON period of Q102 is longer, collector current of Q103 increases and energy stored in capacitor C124 increases, causing potential of C124 to rise. (Refer to Fig. 3-19-2.) When output transistor Q103 goes off, flyback pulse is generated by resonance between capacitor C108 and inductance obtained by parallel connection of FBT and LOT. This flyback pulse is transferred to the secondary circuit of FBT. Therefore high voltage is generated.

3-19-4. High Voltage Regulator

Q102, Q107, IC4 (2/2), IC1 (IC for controlling P.W.M) and HVR (DCT block) form a regulator.
Since the detection pin voltage of HVR is decreased when the high voltage is lowered due to increase of the CRT current, it makes the switch ON time length of Q102 longer. As a result, the collector peak current of Q103 is increased and accordingly, the energy accumulated in C124, which is fed to it through the FBT, is increased. In this way, it raises the potential of C124 and regulates the high voltage.
Q103, C108, C124 and the FBT form a high voltage converter circuit.
The pulse of on-duty 60% is generated with the H pulse by a time constant circuit which consists of Q109, Q110, Q111, Q112, R143, C128, R144, C127 and D111. When Q103 is switched OFF due to the on-duty 60% pulse, flyback pulse is generated at the collector of Q103 by resonating of the LOT, FBT and C108.

3-19-5. High Voltage Protection Circuit

High voltage protector activates to shut down high voltage, when high voltage exceeds the predetermined value so as to prevent Xray radiation.

The high voltage converted to the low voltage is detected at the terminal of DCT block. This detected voltage is fed to the + input terminal of comparator IC2 (2/2) via low pass filter, which is composed of resistor R245 and capacitor C216. When this voltage exceeds the reference voltage, the voltage of ⊖ input terminal of comparator IC2 (2/2), output level of this comparator goes high level and turns SCR (D206) gate on to shut down the drive pulse of flyback generator. Thus high voltage stops.
The reference voltage of the comparator IC2 (2/2) is made by mixing stabilized voltage (zener diode D215).

3-19-6. Protection Circuit for Excess Beam Current

Beam current which flows in secondary windings of FBT is measured at the terminal 9 of FBT. This beam current is converted to the voltage by resistor R1 (R4) and R2 (R3), R5 (R6) located in PB board in, series connection of secondary windings of FBT. This converted voltage is fed to ⊖ input of comparator IC2 (1/2) or IC3 (1/2). As beam current increases. ⊖ input voltage goes down.
When beam current increases until ⊖ input voltage goes below the reference voltage (⊕ input terminal voltage) output voltage of comparator goes up high level and SCR (D205 and D206) turns ON. Thus drive pulse of flyback generator is shut down. Therefore high voltage stops.

3-19-7. CRT Protection Circuit

When vertical deflection stops, this circuit activates to shut down high voltage to prevent damage of CRT.
When vertical deflection stops, there is no vertical output pulse generated at vertical output amplifier. So Q201 transistor is cut off and output of comparator IC4 (1/2) goes up high level. Q202 transistor turns on and flyback generator stops.

3-19-8. G2 Voltage Regulator

Flyback pulse generated at Q103 (HV output transistor) is rectified to obtain DC voltage. Q104 transistor which works in accordance with G2 control circuit in BI board supplied proper voltage to G2 of CRT.

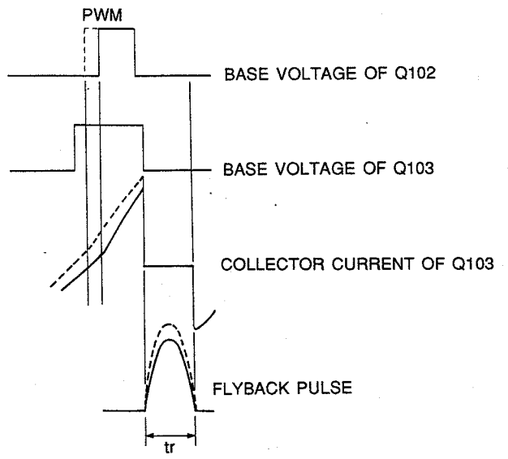


Fig. 3-19-1.

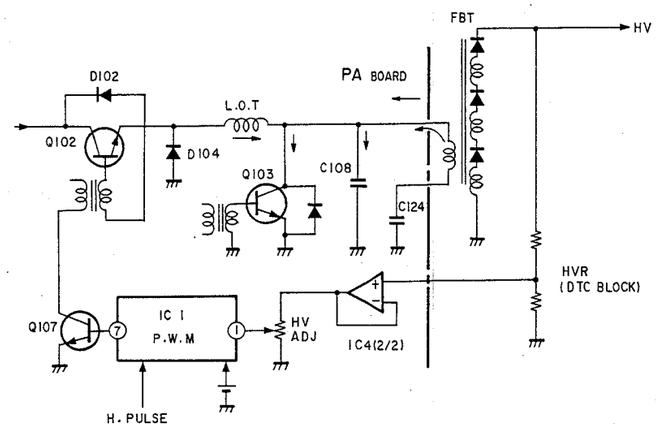
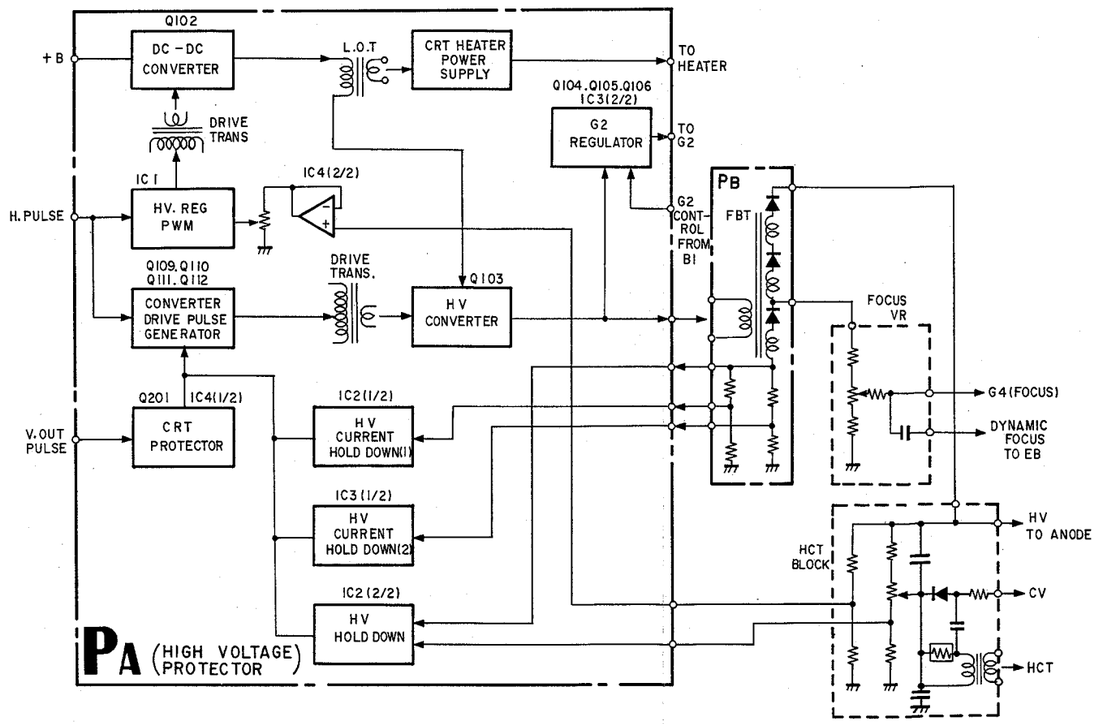


Fig. 3-19-2.

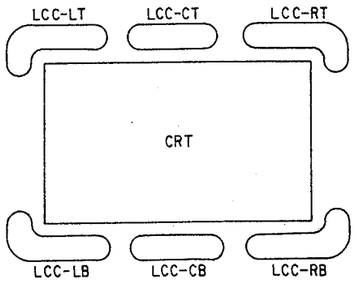
BLOCK DIAGRAM OF PA BOARD



3-20. BEAM LANDING CORRECTION CIRCUIT (R1, R2 BOARD)

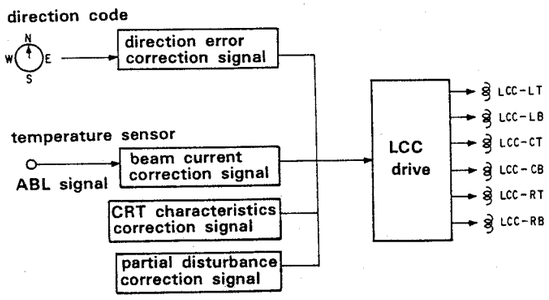
This monitor is equipped with the six pieces of the beam landing correction coils (LCC=Landing Correction Coil) around the circumference of the CRT. The optimum beam landing is maintained by flowing the appropriate correction current. This beam landing correction is applied to the following points.

1. Landing correction that is generated by the direction of monitor installation (horizontal earth's magnetism).
   Note: This circuit does not correct for the vertical earth's magnetism. It is corrected by the purity magnets inside.)
2. Correction for the landing change due to change in ambient temperature.
3. Correction for the landing change due to change of beam current in average.
4. Correction for the landing change due to specific CRT's landing characteristics.
5. Correction for the landing change due to partial disturbance of the ambient magnetic field.



(As viewed from CRT end)

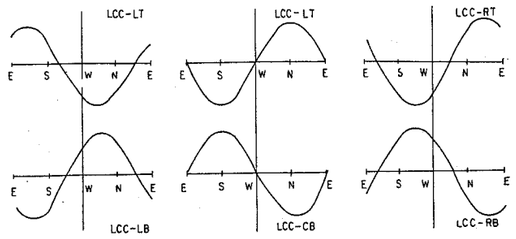
Fundamental correction circuit of the landing correction system is shown as follows. Explanation is discussed block by block.



Fundamental block diagram

Direction Correction Signal

As the monitor is installed, it receives the effect of earth's magnetism. The effect of the earth's magnetism is different depending on the direction of the monitor installed. The beam landing receives its effect and the landing change due to the earth's magnetism change corrected by determining the polarities of the six pieces of the LCCs respectively. Flowing the six different ac sinusoidal electric currents through the six LCCs respectively as shown in Fig. 3-20-1., can correct the beam landing error due to the earth's magnetism.



Direction correction current for LCC

This system has the digital memory that memorizes the direction data for every 1/16th direction. These digital data are memorized in IC3 memory as shown in Fig. 3-20-2. and are supplied to the coils of LCC-LT and LCC-RB only. The switch S1 in the W board provides the 4 bit direction data that corresponds to the ROM addresses A0 through A3. The least address A4 receives 0 and 1 output alternatingly at vertical rate, which is supplied from IC2 ⑦ pin. Thus the landing correction data are obtained from ROM and determined by S1, and are supplied to the dual D/A convertors of IC4 where data are latched. These are dual data for LCC-LT and for LCC-RB. These two digital data are fed to the IC4 dual D/A convertor alternatingly at vertical rate. The analog converted data are then buffered and output to the LCC driver circuit as the landing correction signal. The LCC-LB and LCC-RT correction signals are obtained by reversing the LCC-LT and LCC-RB signal with IC5 (2/2) and IC6 (2/2).
Amplitude of these waveforms can be adjusted by shifting the D/A convertor's reference voltage with RV1, depending upon the strength of earth's magnetic field effect. The LCC-CB correction signal is obtained by adding both the LCC-LB and LCC-RT correction signals by IC7 (1/2). The added output is further inverted to produce the LCC-CT correction signal. Amplitude of these signal waveforms can be adjusted by RV2, and adjusted depending upon the strength of horizontal earth's magnetic field effect.

Direction	Address					Data
	A4	A3	A2	A1	A0	
North	0	0	0	0	0	LT0
	0	0	0	0	1	RB0
North/North/East	0	0	0	0	0	LT1
	0	0	0	1	1	RB1
Northeast	0	0	1	0	0	LT2
	0	0	1	0	1	RB2
.	.	.	.	.	.	.
.	.	.	.	.	.	.
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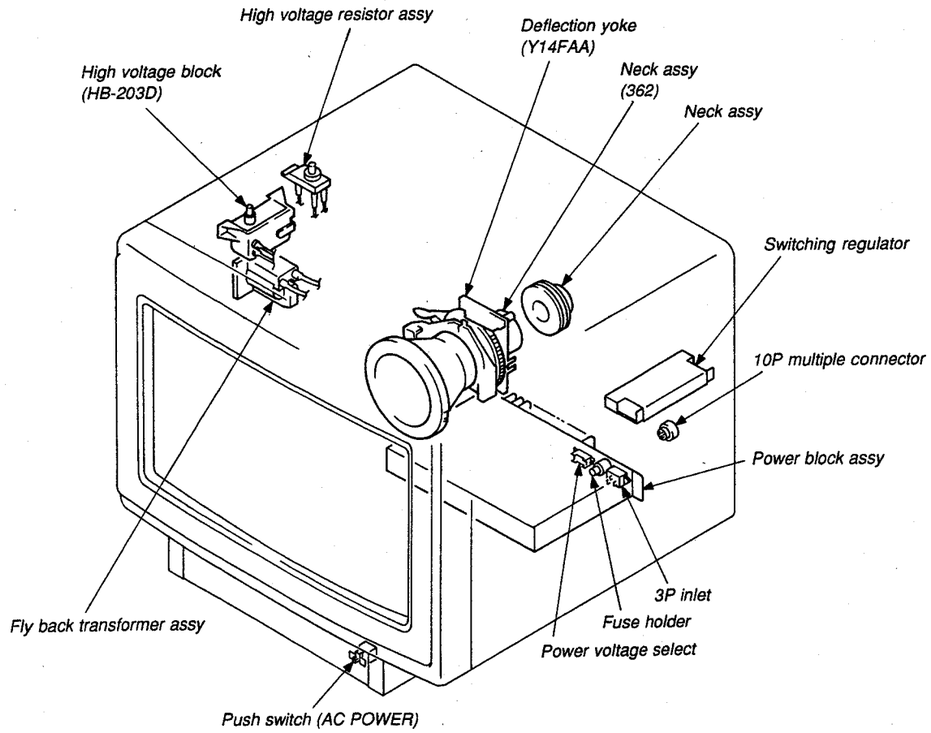
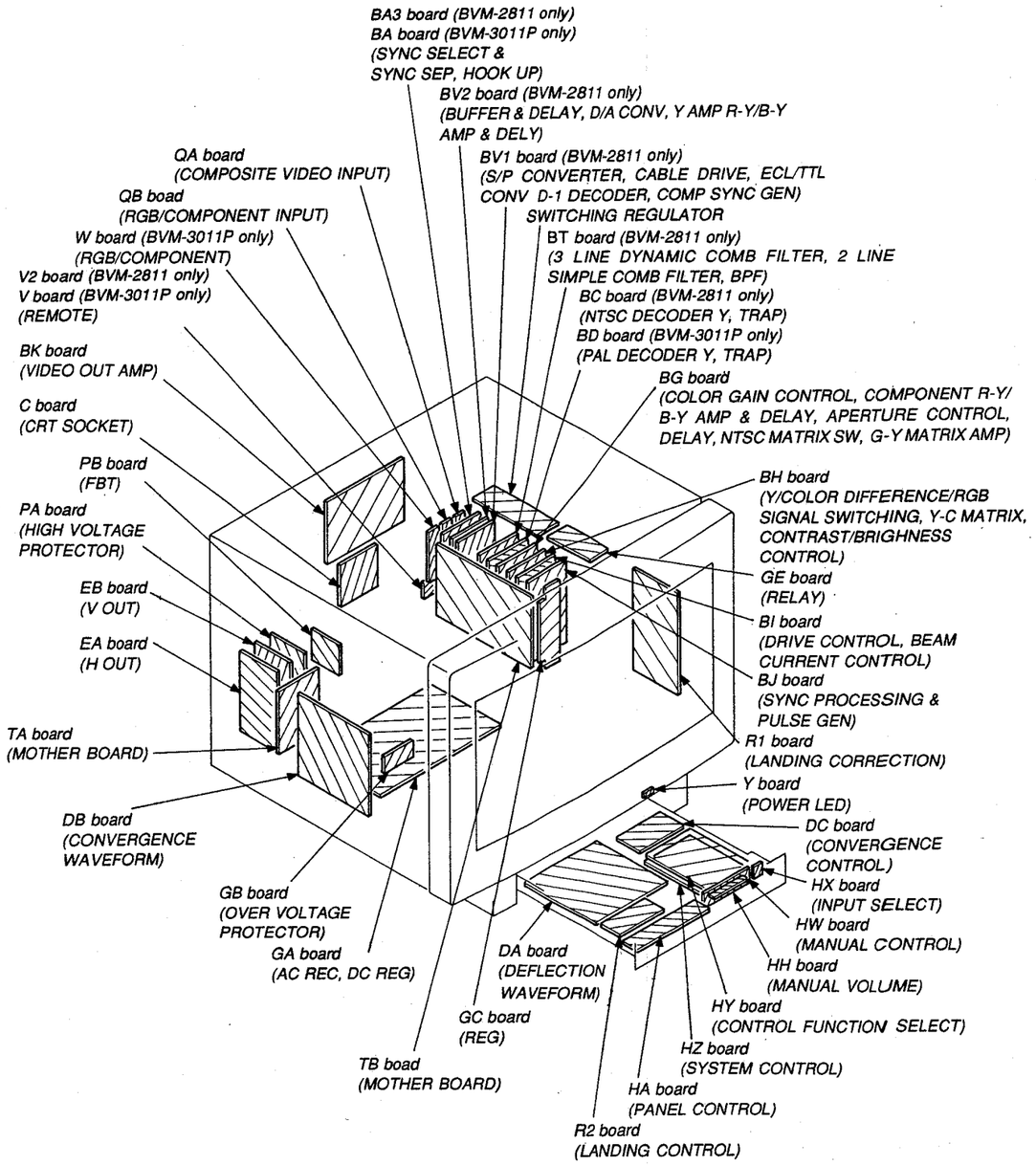
SECTION 4
ADJUSTMENTS

4-1. INTERNAL VIEW



4-2. CIRCUIT BOARDS LOCATION



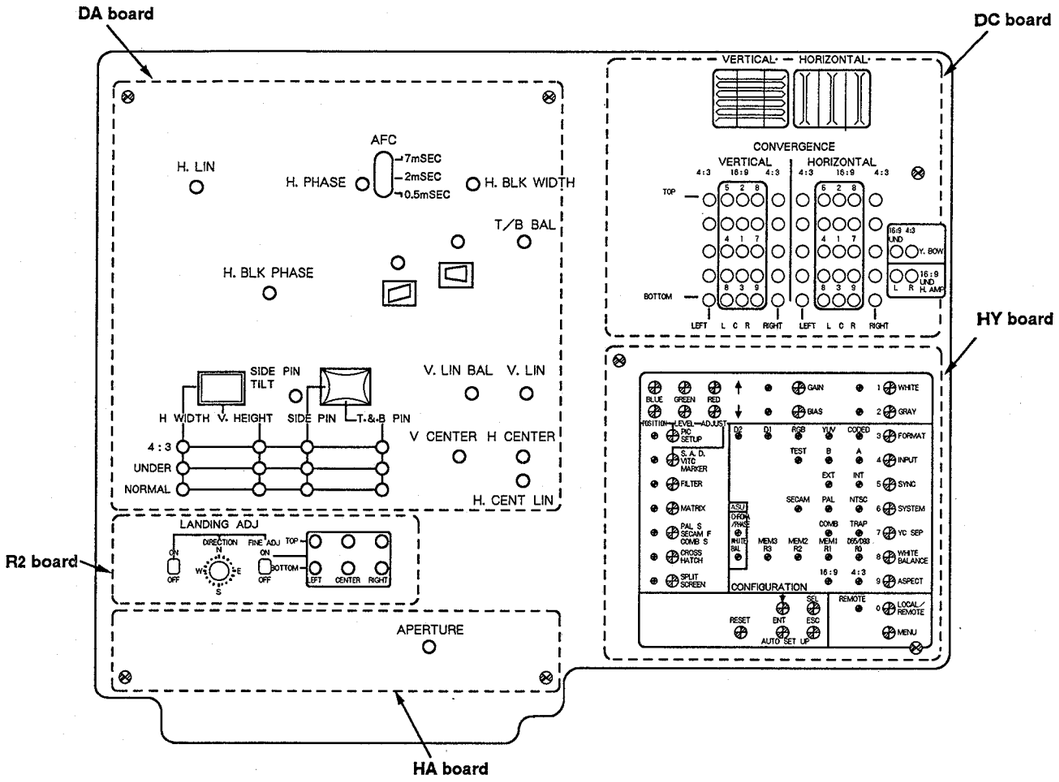
4-3. QUICK REFERENCE

BOARD / SECTION	BA	BA3	BC	BD	BG	BH	BI	BJ	BK	BT	BV1	BV2	C	DA
CIRCUIT DISCRIPTION	3-2	3-1	3-25	3-23	3-5	3-7	3-11 3-19	3-13	3-17 3-19	3-21	3-9	3-9	—	3-35
ADJUSTMENTS	4-23 4-27	4-88	4-33	4-63	4-23 4-29	4-23	—	4-21 4-32 4-46	4-47	4-49	4-94	4-96	—	4-78
BLOCK DIAGRAM	3-4	3-2	3-26	3-24	3-6	3-7	3-11	3-14	3-17	3-21	3-10	3-10	—	3-37
MOUNTING DIAGRAM	5-19	5-27	5-29	5-37	5-39	5-47	5-49	5-57	5-59	5-65	5-71	5-73	5-106	5-81
SCHEMATIC DIAGRAM	5-21	5-24	5-31	5-34	5-41	5-44	5-51	5-54	5-61	5-63	5-68	5-75	5-110	5-78
ELECTRICAL PARTS LIST	7-2	7-5	7-8	7-10	7-13	7-15	7-18	7-20	7-22	7-25	7-29	7-31	7-34	7-34

BOARD / SECTION	DB	DC	EA	EB	GA	GB	GC	GE	HA	HH	HW	HX	HY	HZ
CIRCUIT DISCRIPTION	3-31	3-31	3-39	3-27	3-29	3-29	—	—	—	—	—	—	—	—
ADJUSTMENTS	—	—	—	—	4-13	—	—	—	—	—	—	—	—	—
BLOCK DIAGRAM	3-32	3-32	3-39	3-28	3-30	3-30	—	—	—	—	—	—	—	—
MOUNTING DIAGRAM	5-83	5-91	5-94	5-95	5-101	5-100	5-123	5-129	5-113	5-113	5-113	5-114	5-115	5-119
SCHEMATIC DIAGRAM	5-85	5-89	5-97	5-97	5-103	5-103	5-125	5-133	5-112	5-111	5-111	5-111	5-111	5-116
ELECTRICAL PARTS LIST	7-37	7-40	7-41	7-43	7-44	7-46	7-47	7-47	7-47	7-48	7-48	7-48	7-48	7-50

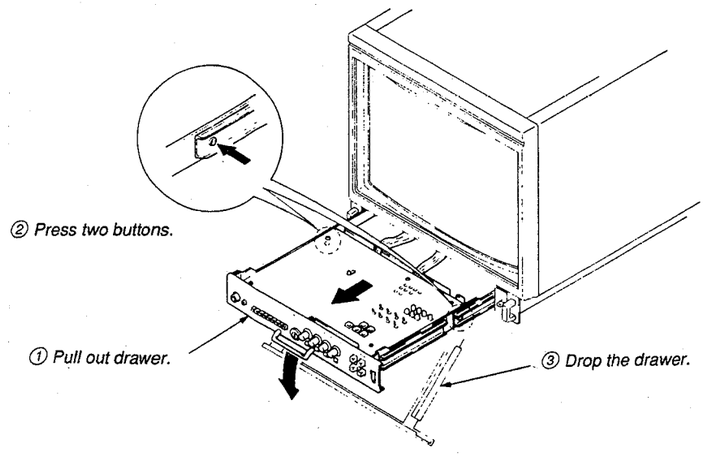
BOARD / SECTION	PA	PB	QA	QB	R1	R2	TA	TB	V	V2	W	Y	Z	
CIRCUIT DISCRIPTION	3-41	3-41	3-2	3-2	3-43	3-43	—	—	—	—	—	—	—	
ADJUSTMENTS	4-15	—	—	—	4-87	4-87	—	—	—	—	—	—	—	
BLOCK DIAGRAM	3-42	3-42	3-4	3-4	—	—	—	—	—	—	—	—	—	
MOUNTING DIAGRAM	5-107	5-106	5-123	5-123	5-128	5-129	5-11	5-15	5-124	5-124	5-123	5-114	5-135	
SCHEMATIC DIAGRAM	5-109	5-110	5-125	5-125	5-131	5-131	5-13	5-17	5-126	5-126	5-126	5-112	—	
ELECTRICAL PARTS LIST	7-52	7-54	7-54	7-54	7-55	7-57	7-58	7-58	7-58	7-58	7-59	7-59	7-59	

4-4. SUB CONTROL PANEL LOCATION



ADJUSTING METHOD OF DRAWER BLOCK

* Pull out sub-control panel and press two stopper buttons to drop it 60° as shown in the figure.



4-5. SETUP ADJUSTMENT IN CASE OF PICTURE TUBE REPLACEMENT

When the picture tube has been replaced, make the following adjustments. Convergence and white balance are normally adjusted by the potentiometers on the sub control panel.
(Refer to pages 4-6, 4-7, 4-8 and 4-9)

[Jigs Tools and Measurement Equipment Required]

1. SIGNAL GENERATOR (TEKTRONIX 1410 and 1411 Series)
2. COLOR ANALYZER
3. LUMINANCE METER

[Landing adjustment]

1. Connect signal generator and receive a white signal.
2. Set BRIGHTNESS and CONTRAST VRs to the preset position (⊓).
3. Face the CRT screen toward East (or West) and press the DEGAUSS switch.
4. Set the purity knob to mechanical center as shown in Fig. 1-1.

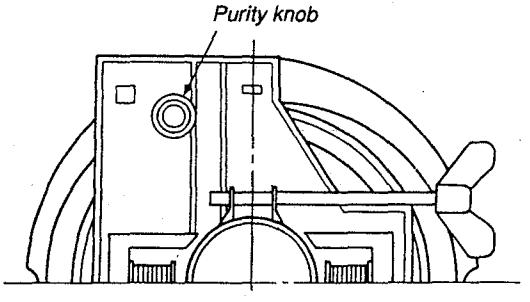


Fig. 1-1.

5. Slide DY (Deflection Yoke) as far forward as possible.
6. Set the neck assembly in the position shown in Fig. 1-2.

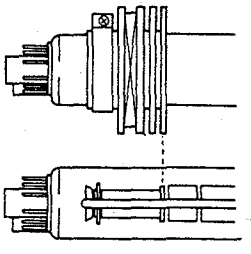


Fig. 1-2.

7. Set the screen the green only (R and B on the FRONT PANEL are in the IN position and G in the OUT position).
8. Turn purity knob as shown in Fig. 1-3 to bring the green on the center of the screen.

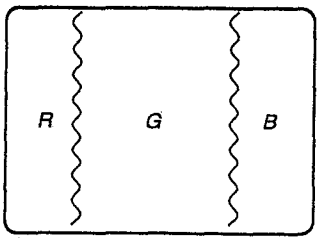


Fig. 1-3.

9. Slide DY back for uniform green raster.
10. Make the screen red only (G and B on the FRONT PANEL are in the IN position and R in the OUT position) and check landing.
11. Make the screen blue only (R and G on the FRONT PANEL are in the IN position and B in the OUT position) and check landing.
12. Adjust DY tilt and tighten DY set-screw.
13. Secure the DY with the spacers. (Fig. 1-4)

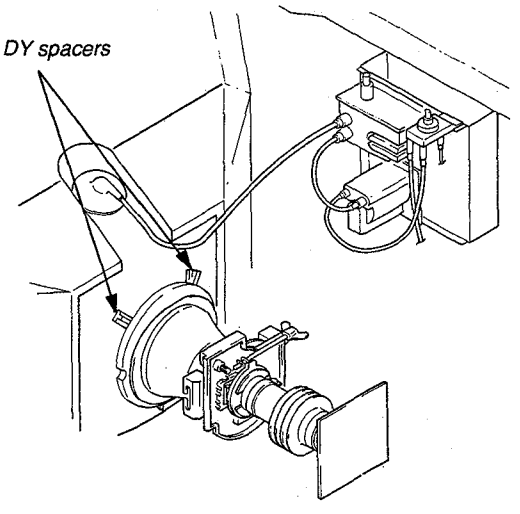
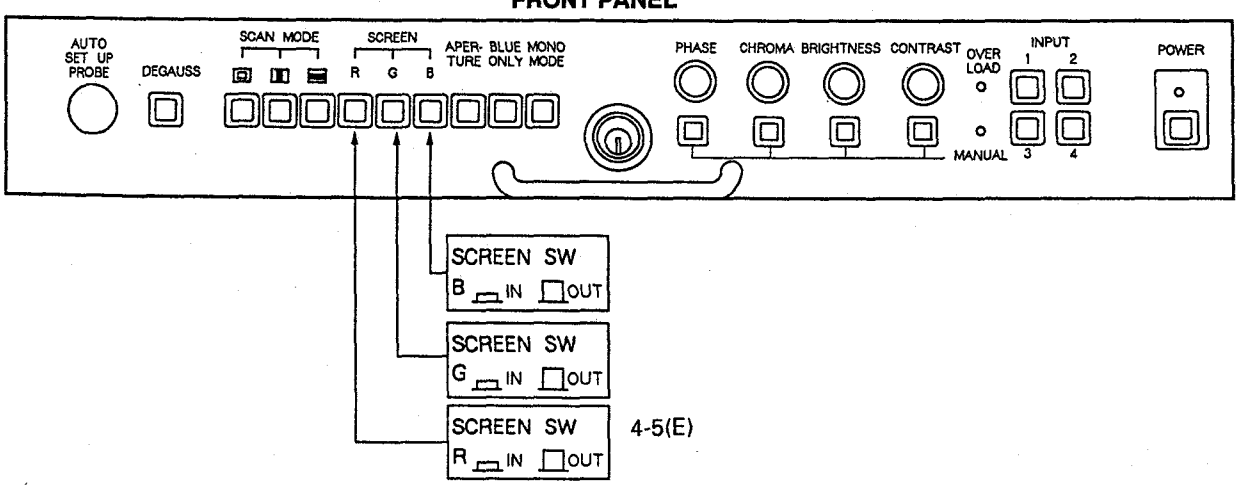


Fig. 1-4.

- **Final check**
  After adjustments, check that there is no mislanding by facing the CRT towards East, West, North and South directions.

FRONT PANEL



[Focus adjustment]

1. Connector signal generator (TEKTRONIX 1410 and 1411).
2. Input a dot or cross-hatch signals.
3. Adjust the FOCUS control for best focus in the central portion of the screen as shown in Fig. 1-5.

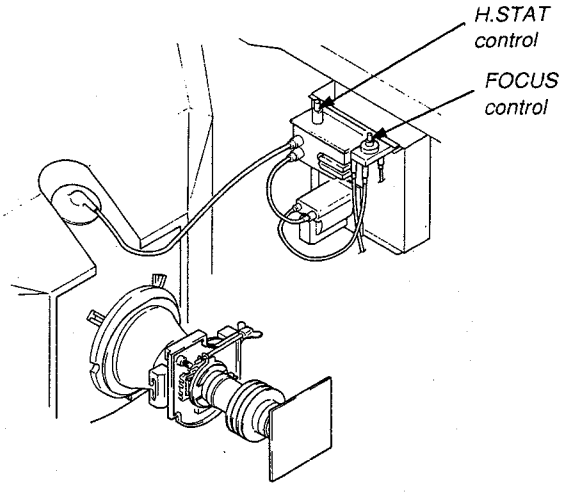


Fig. 1-5.

[Convergence Adjustment]

Preparation

1. Complete the signal generator connection and feed the dot and cross-hatch signals.
2. Set the CONTRAST and BRIGHTNESS controls at the points where the dots and the cross-hatch can be observed clearly.
3. Set the H.STATIC CENTER control (RV23) on the DC board to mechanical center as shown in Fig. 1-6.

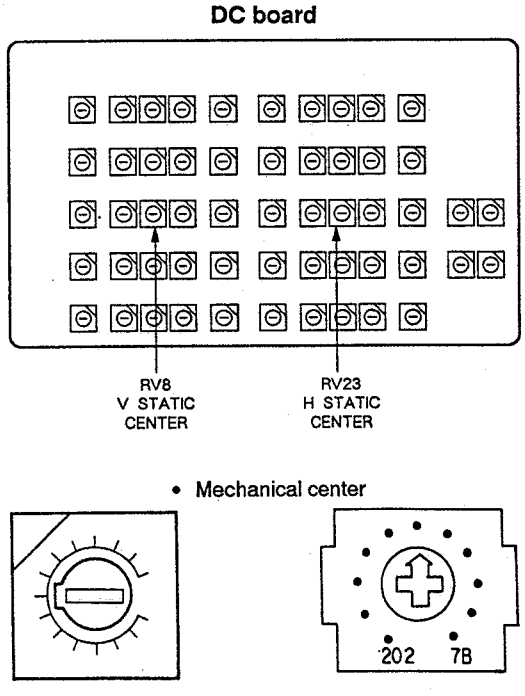


Fig. 1-6.

[Static Convergence]

- **Horizontal Static Convergence**

1. Adjust H.STAT control of DCT BLOCK to match the convergence of red and green in the horizontal direction at screen center.
2. Perform the HMC correction when blue is out of convergence in the same direction on all over the screen.
3. Move the BMC magnet to correct H.static convergence as shown in Fig. 1-7.

- **Vertical Static Convergence**

1. Adjust the V.STATIC CENTER (RV8) on the DC board to match the convergence of red and green in the vertical direction at screen center.
2. When blue is out of the convergence in the same direction all over the screen, perform the VMC correction.
3. Move the BMC magnet to correct static convergence as shown in Fig. 1-7.

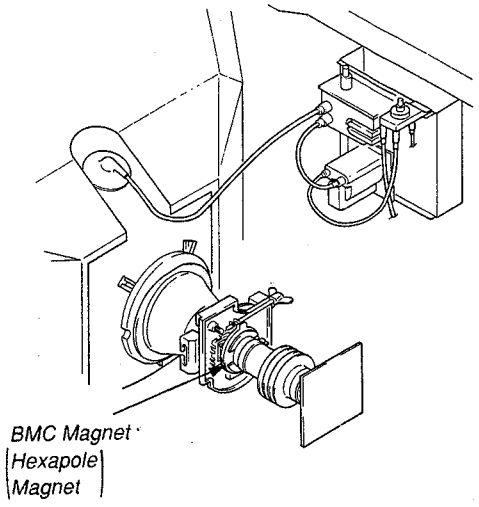


Fig. 1-7.

- **HMC and VMC correction for BMC Magnet.**

1. HMC (Horizontal, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

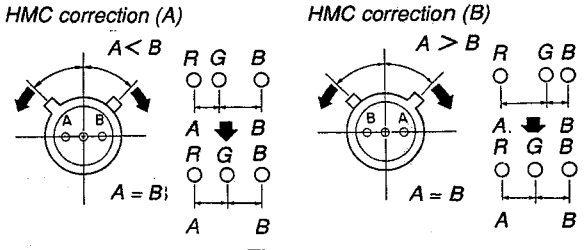


Fig. 1-8.

2. VMC (Vertical, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

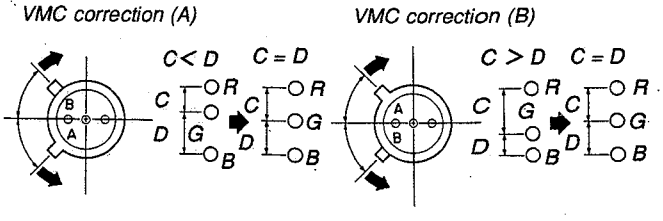


Fig. 1-9.

[DYNAMIC CONVERGENCE]

- **Convergence adjustment of 4:3 aspect picture.**

1. ASPECT button on the HY board ····· 4:3
2. Adjust CONVERGENCE controls (RV1 to RV30) on the DC board as shown in Fig. 1-10.
3. It can be adjusted as Red and Blue move in symmetry to the Green. (Green does not move)
4. Adjust the convergence corresponding to the portion of the screen as follows.
5. Always match the convergence in the order of center → on Y axis → on X axis → corner against the screen.

DC board

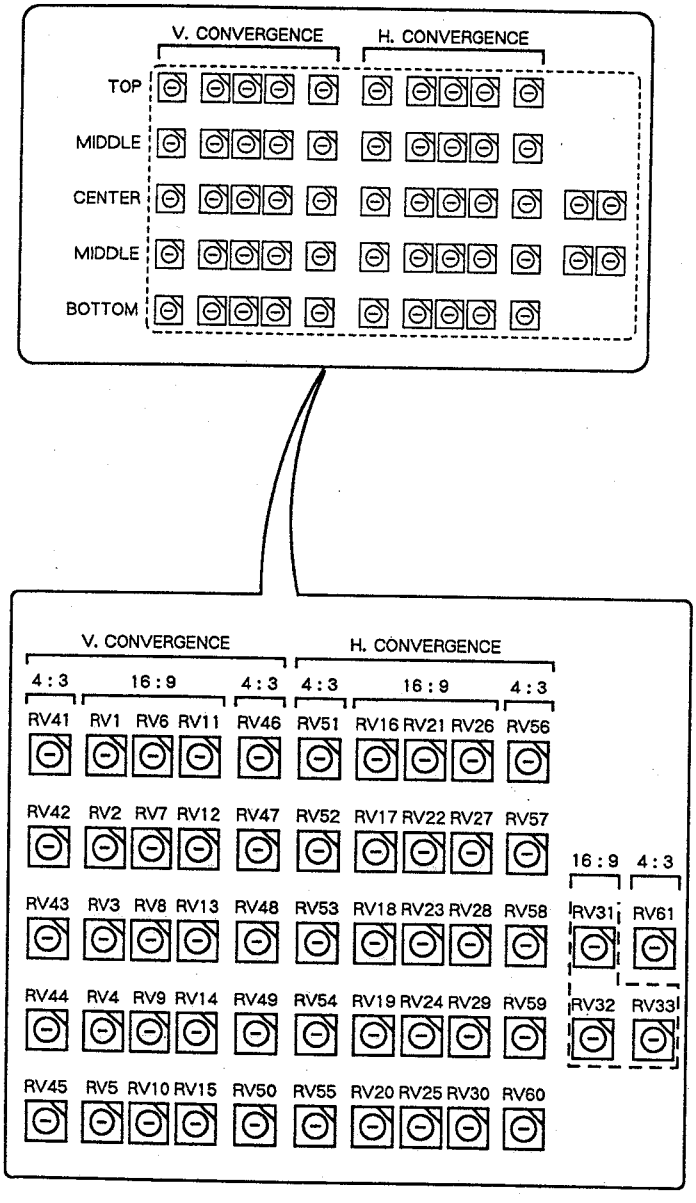


Fig. 1-10.

[CONVERGENCE PROCESS]

1. UNDER SCAN switch·····NOR (⊓)
2. Adjust RV23 and RV8 on the DC board to coincide with the R, G and B dots at the center of the screen as shown in Fig. 1-11.

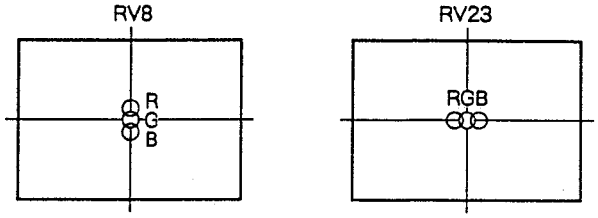


Fig. 1-11.

3. Adjust RV6, RV10, RV21 and RV25 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-12.

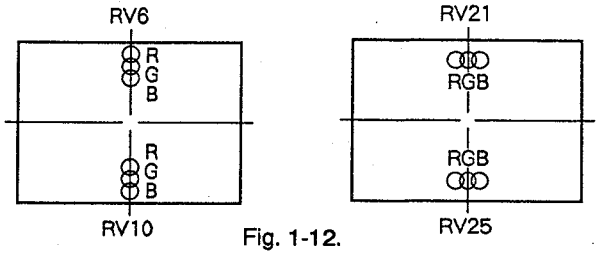


Fig. 1-12.

4. Adjust RV3, RV13 and RV18, RV28 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-13.

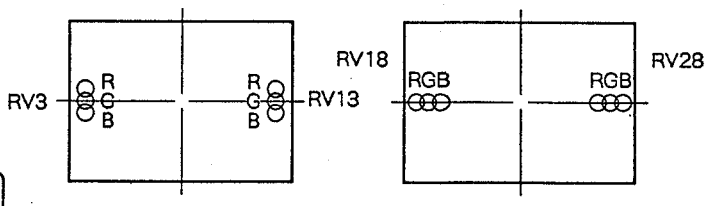


Fig. 1-13.

5. Adjust RV1, RV5 and RV11, RV15 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-14.

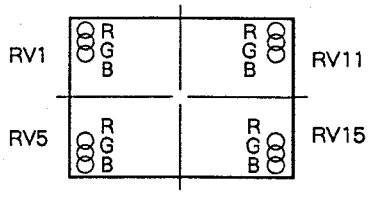


Fig. 1-14.

6. Adjust RV16, RV20 and RV26, RV30 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-15.

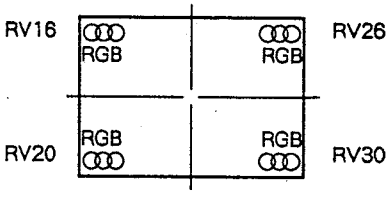


Fig. 1-15.

7. Adjust RV7, RV9 and RV22, RV24 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-16.

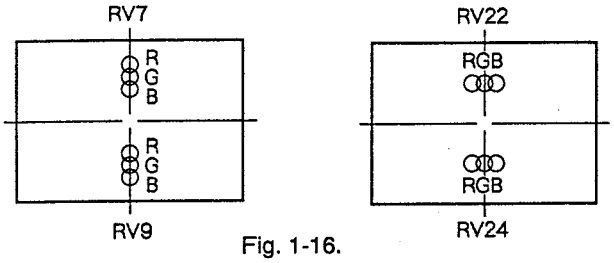


Fig. 1-16.

8. Adjust RV2, RV4 and RV12, RV14 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-17.

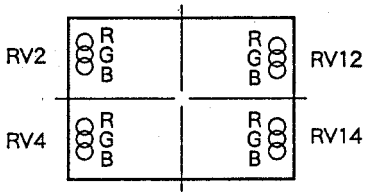


Fig. 1-17.

9. Adjust RV17, RV19 and RV27, RV29 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-18.

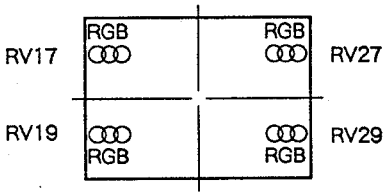


Fig. 1-18.

10. UNDER SCAN switch····· UNDER ( )
11. Adjust RV31 (UNDER SCAN Y.BOW) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-19.

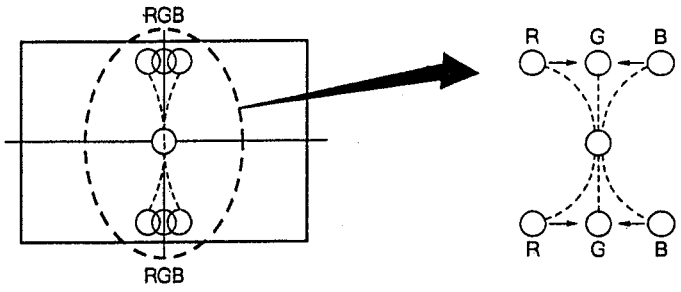


Fig. 1-19.

12. Adjust RV32 and RV33 (UNDER SCAN H.AMP) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-20.

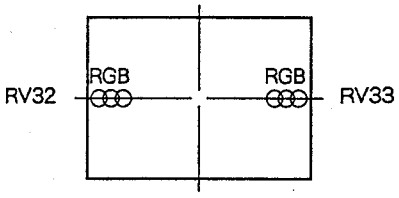
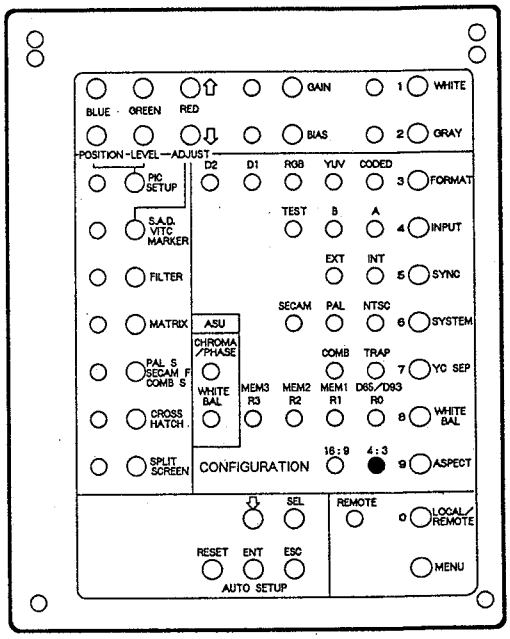
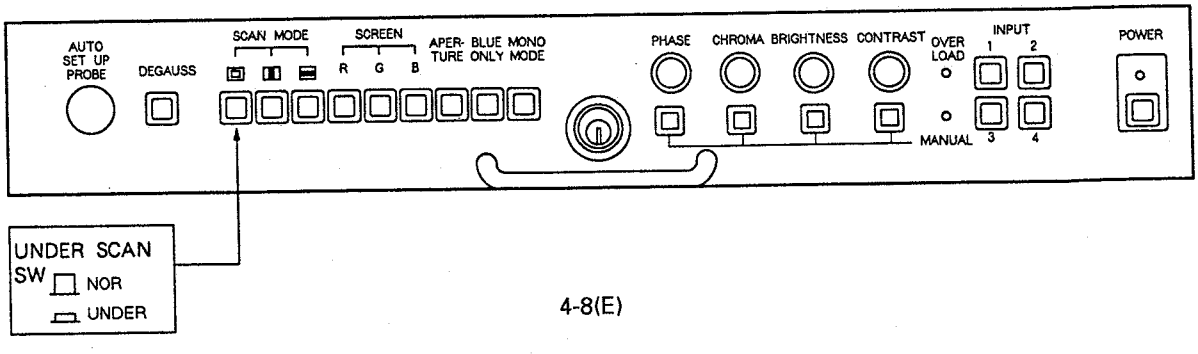


Fig. 1-20.

SUB CONTROL PANEL (HY board)



FRONT PANEL



- **Convergence adjustment of 16:9 aspect picture.**

1. ASPECT button on the HY board ·····16:9
2. Adjust CONVERGENCE controls (RV41 to RV60) on the DC board as shown in Fig. 1-21.
3. It can be adjusted as Red and Blue move in symmetry to the Green. (Green does not move)
4. Adjust the convergence corresponding to the portion of the screen as follows.
5. Always match the convergence in the order of center → on Y axis → on X axis → corner against the screen.

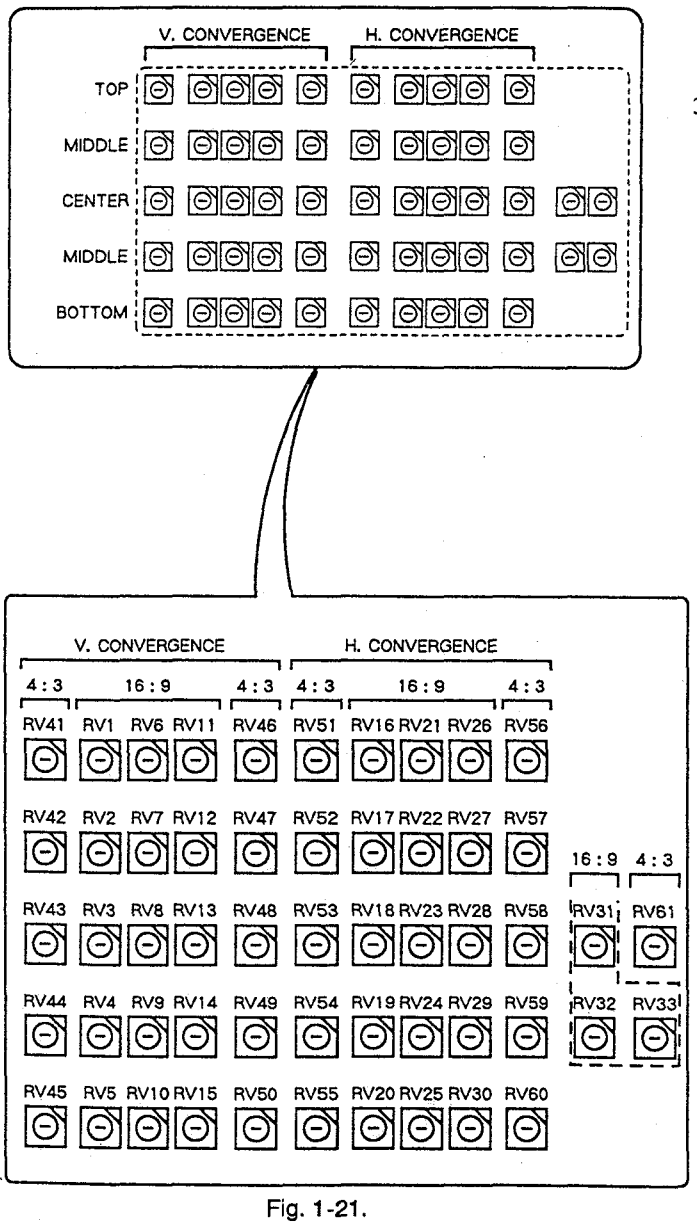


Fig. 1-21.

[CONVERGENCE PROCESS]

1. UNDER SCAN switch·····NOR (凵)
2. Adjust RV43, RV48 and RV53, RV58 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-22.

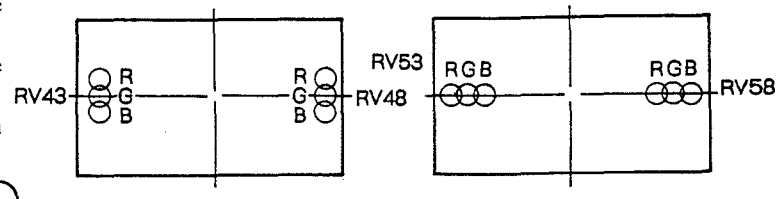


Fig. 1-22.

3. Adjust RV41, RV45 and RV46, RV50 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-23.

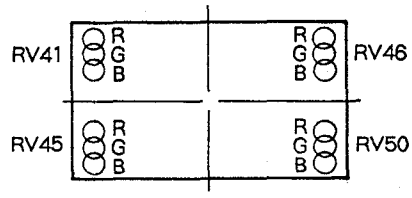


Fig. 1-23.

4. Adjust RV51, RV55 and RV56, RV60 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-24.

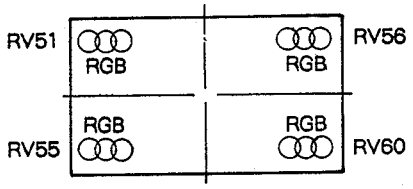


Fig. 1-24.

5. Adjust RV42, RV44 and RV47, RV49 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-25.

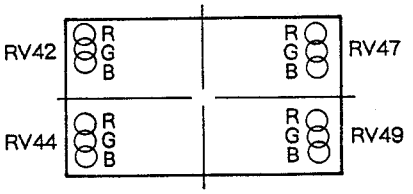


Fig. 1-25.

6. Adjust RV52, RV54 and RV57, RV59 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-26.

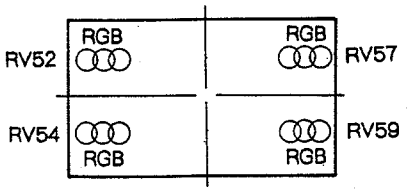


Fig. 1-26.

7. Adjust RV61 (Y.BOW) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-27.

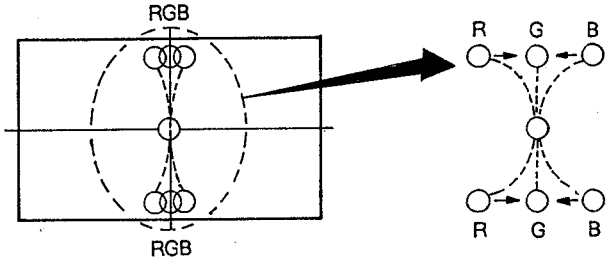
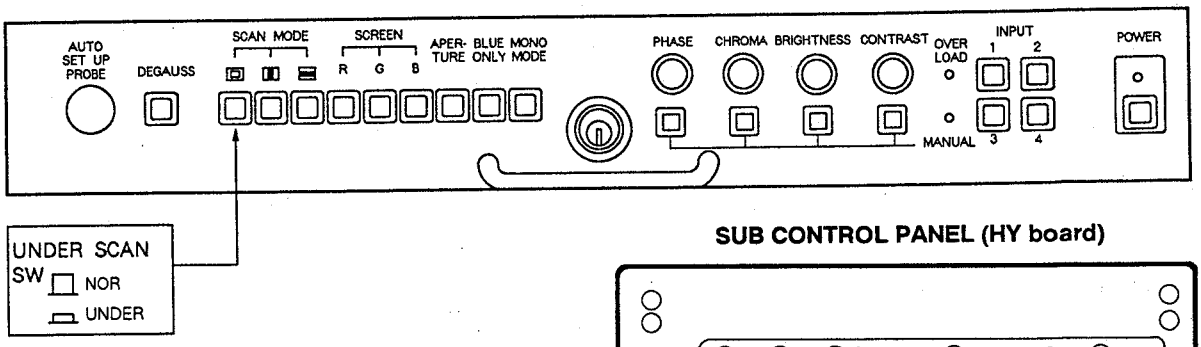
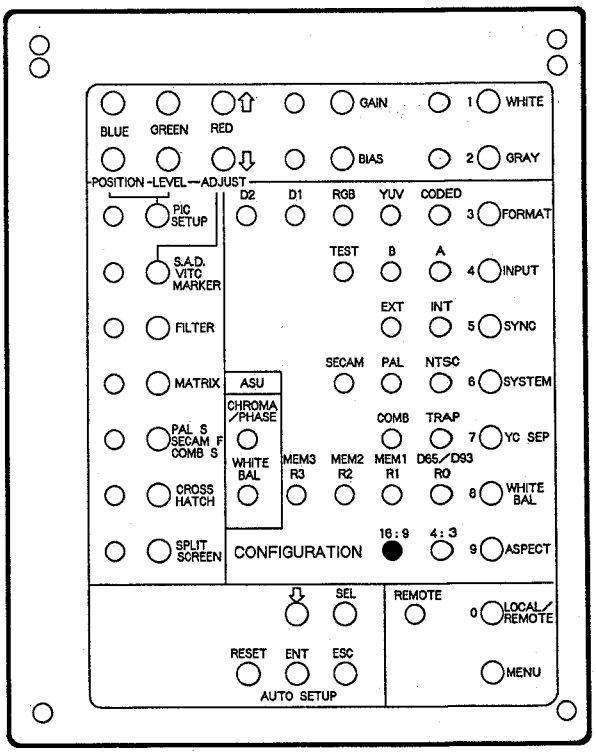


Fig. 1-27.

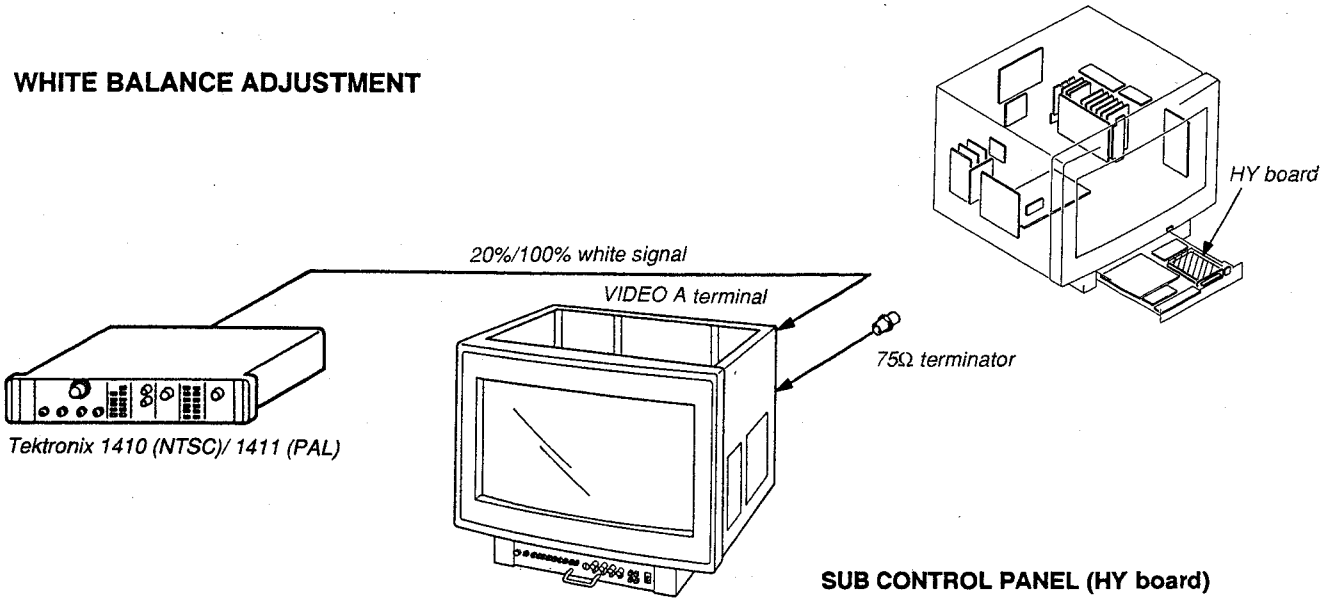
FRONT PANEL



SUB CONTROL PANEL (HY board)

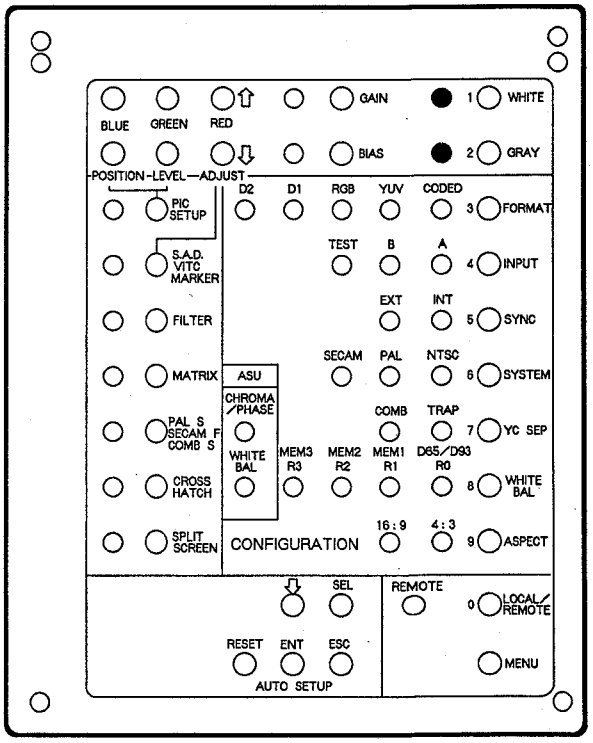


WHITE BALANCE ADJUSTMENT

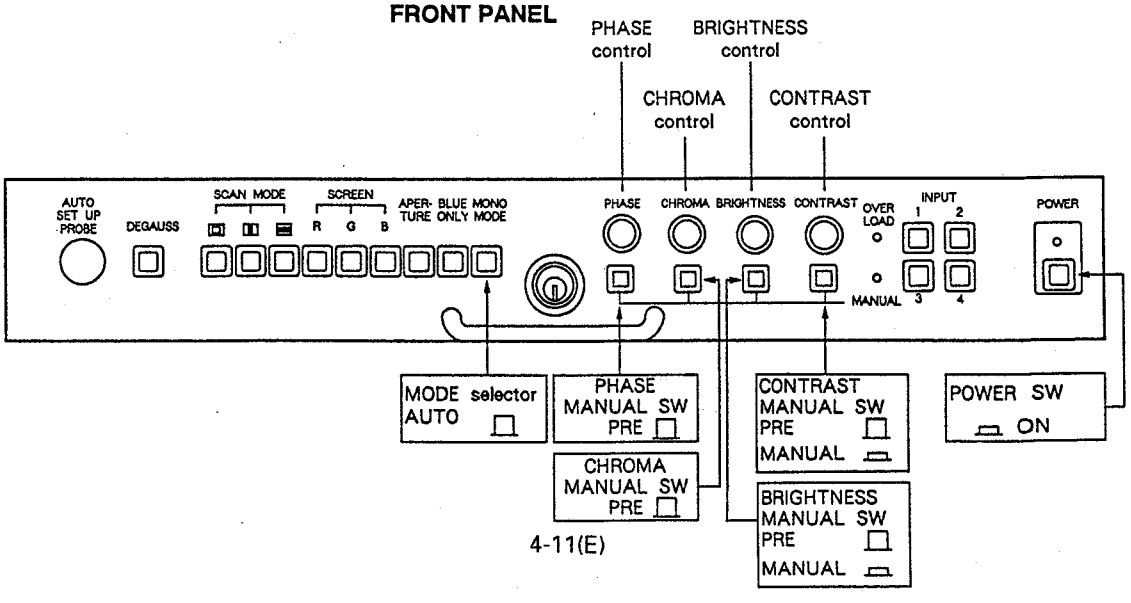


1. BRIGHTNESS MANUAL switch····· MANUAL (⏥)
   CONTRAST MANUAL switch ····· MANUAL (⏥)
2. Turn BRIGHT and CONTRAST to become 100 with PRESET MENU.
   SAVE the DATA.
3. Switch off the MANUAL switches of CONTRAST and BRIGHT.
4. Input 20% white signal to VIDEO A connector.
5. Turn BIAS controls (S21: Red, S23: Green, S32: Blue) on the HY board to adjust the BRIGHTNESS to 1.8 cd/m (nit) and white balance using COLOR ANALYZER and check 1.8 cd/m (nit) by LUMINANCE METER.
6. White button ·····ON
7. Turn GAIN controls (S20: Red, S22: Green, S31: Blue) on the HY board to adjust the BRIGHTNESS at HIGH LIGHT to 68 cd/m (nit) and white balance using COLOR ANALYZER and check 68 cd/m (nit) by LUMINANCE METER.
8. Repeat procedure steps 4 to 8 if necessary.
9. Save the date with SAVE BALANCE MENU.

SUB CONTROL PANEL (HY board)



FRONT PANEL



4-6. SAFETY RELATED ADJUSTMENTS

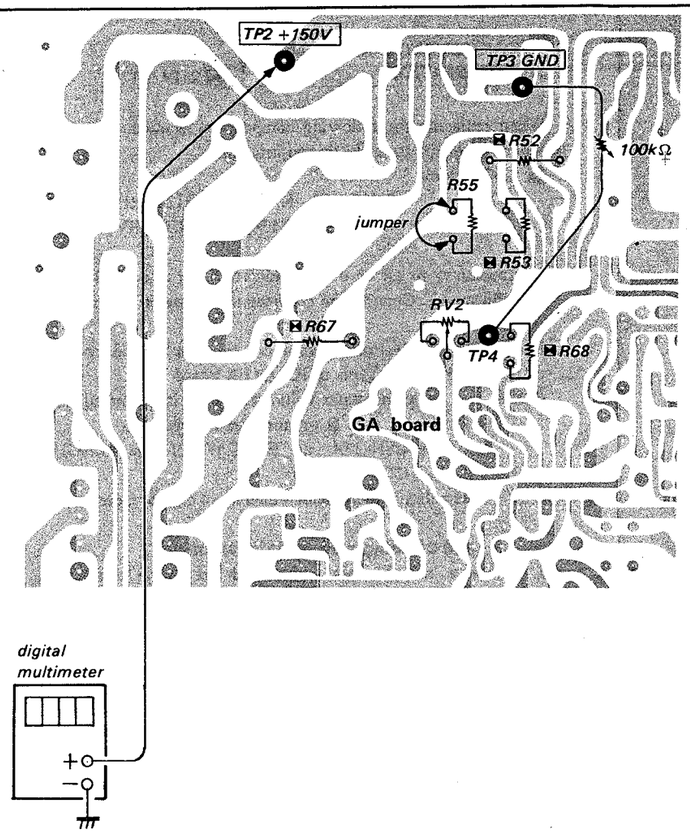
B+ PROTECTOR (⊠ R52, R53)

When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ GA Board · Q13, Q14, R52, R53
GB Board · D5, D6, D7, D8, Q3, Q4, Q5, R4, R5, R19, R20, R21, R22

It is necessary to use a digital multimeter for this confirmation.
Connect a digital multimeter to TP2 on GA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is out ⊓)
2. Short-circuit R55 on GA board.
3. Connect a 100kΩ variable resistor between TP4 and TP3 (GND) on GA board.
4. Confirm that the reading on the digital multimeter drops abruptly from +182.0V to +216.0V to 0V by turning the 100kΩ variable resistor so that the value of the resistor decrease from maximum value.
5. If step 4 isn't satisfied, select resistance values of R52 and R53 which satisfy the specifications.
6. Restore these to their original states and confirm that the voltage at TP2 is 150.0 ± 1.0V.



B+ MAX CONFIRMATION (⊠ R67, R68)

When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ GA Board ····· C59, IC3, R67, R68, R78, RV2

It is necessary to use a digital multimeter for this confirmation.
Connect a digital multimeter to TP2 on GA Board.

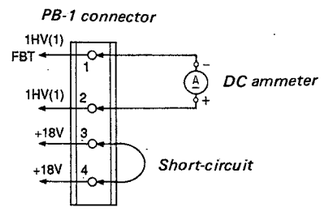
1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is out ⊓)
2. Confirm that the reading on the digital multimeter is +165.0V ± 13.0V when RV2 variable resistor is turned to fully clockwise.
3. If the specifications are not met, select resistance values for R67 and R68 which satisfy the specifications.
4. After confirmation, make the reading on the digital multimeter into +150.0V ± 1.0V by adjusting RV2 on GA Board.

BEAM CURRENT PROTECTOR 1 CONFIRMATION (⊠ R222)

When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ PA Board ··· D205, D206, D215, IC2, R201, R202, R213, R214, R220, R221, R222, R223, R224, R242
PB Board ··· FBT, R1, R2, R5

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.



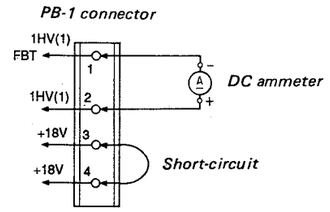
3. Connect a digital multimeter TP2 and TP4 (GND) of PA board.
4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE).
   Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP2 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP2 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ 1/4W resistor (metal–film) should be mounted at the portion of R222 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R231 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is 2.20mA ± 0.35mA.
10. Remove the short-circuit from R231 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).

BEAM CURRENT PROTECTOR 2 (⊠ R239)

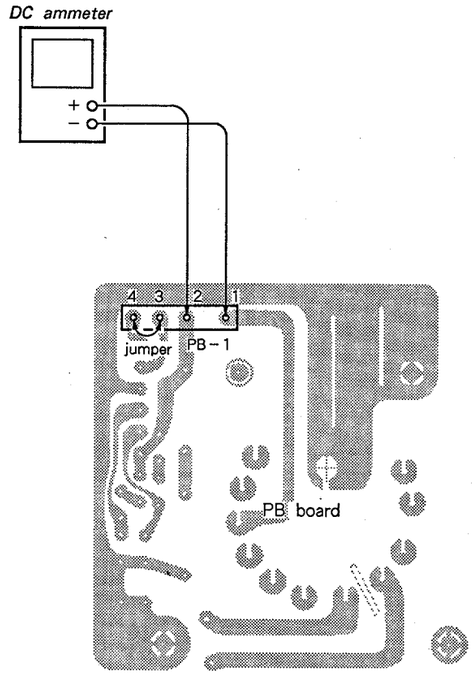
When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

◪ PA Board ··· D204, D216, IC3, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247
PB Board ··· R3, R4, R6, FBT

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.

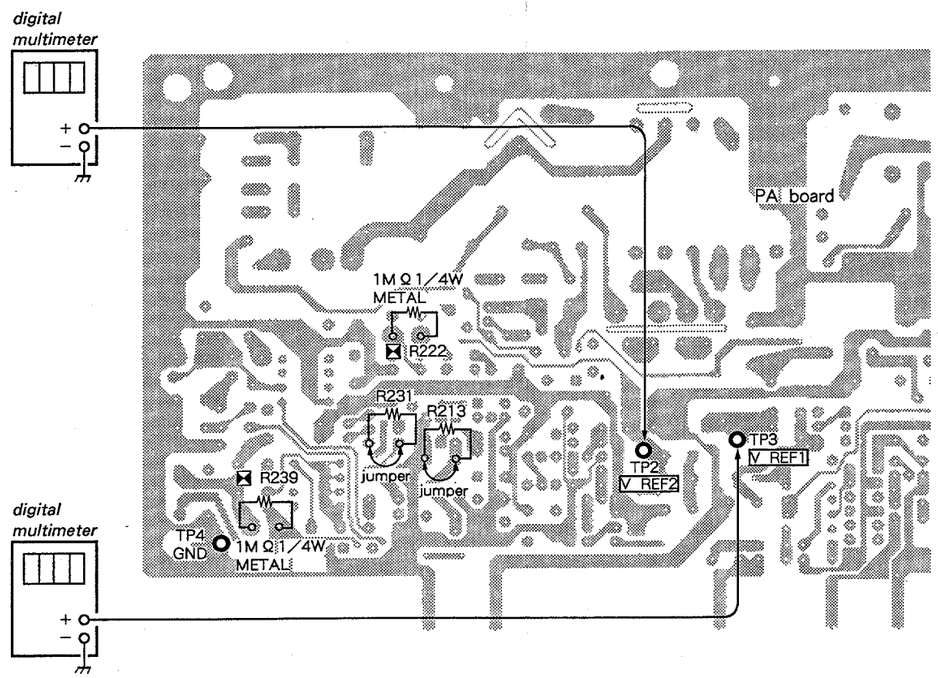


3. Connect a digital multimeter TP3 and TP4 (GND) of PA board.
4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE).
   Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP3 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ 1/4W resistor (metal–film) should be mounted at the portion of R239 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R213 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is 2.20mA ± 0.35mA.
10. Remove the short-circuit from R213 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).



3. Connect a digital multimeter TP2 and TP4 (GND) of PA board.
4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE).
   Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP2 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP2 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ 1/4W resistor (metal–film) should be mounted at the portion of R222 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R231 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is 2.20mA ± 0.35mA.
10. Remove the short-circuit from R231 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).

4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE).
   Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP3 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ 1/4W resistor (metal–film) should be mounted at the portion of R239 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R213 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is 2.20mA ± 0.35mA.
10. Remove the short-circuit from R213 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).

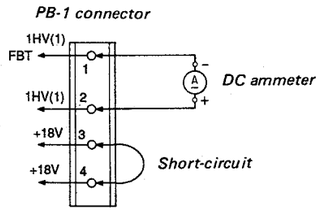


BEAM CURRENT PROTECTOR 2 (⊠ R239)

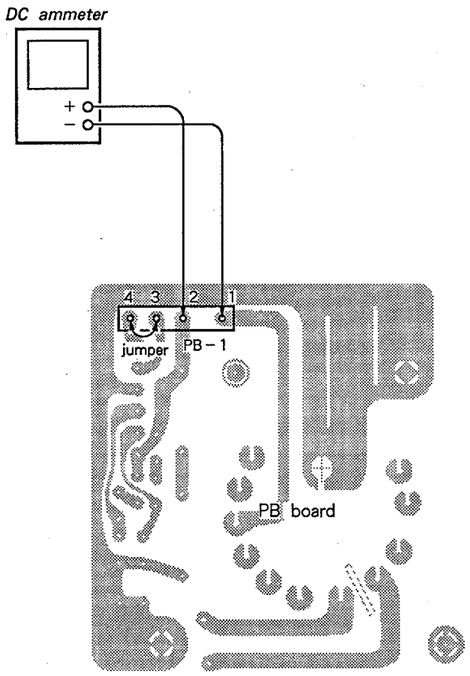
When replacing the following components (marked ◪ on the schematic diagram), make this confirmation.

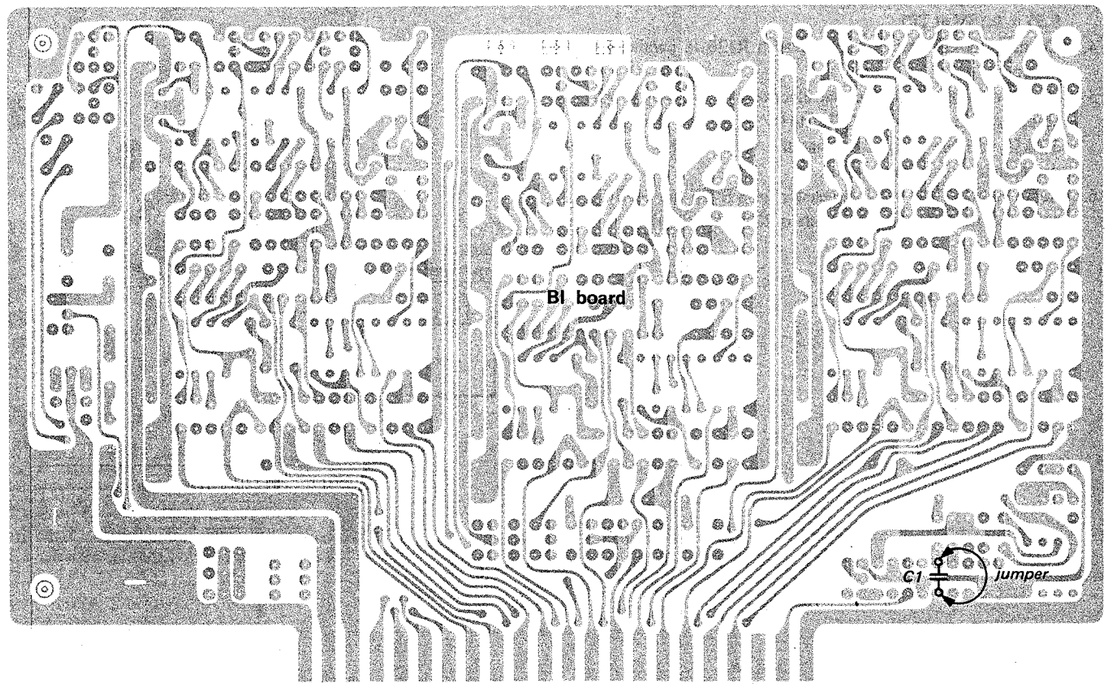
◪ PA Board ··· D204, D216, IC3, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247
PB Board ··· R3, R4, R6, FBT

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.



3. Connect a digital multimeter TP3 and TP4 (GND) of PA board.





HIGH VOLTAGE HOLD DOWN ADJUSTMENT AND CONFIRMATION (⊠R227, R228)

When replacing the following components (marked ◪ on the schematic diagram), make this adjustment.

◪ DCT block
PA Board ··· D205, D207, D215, IC2, R201, R202, R213, R214, R225, R226, R227, R228, R243, R245

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.
Even though an electrostatic voltmeter may not be used, connect digital multimeter to ⑦ pin of IC4 on PA Board.

In case of using electrostatic voltmeter

1. Connect the electrostatic voltmeter to the anode cap and connect a digital multimeter to TP1 and TP4 (GND) on PA board.

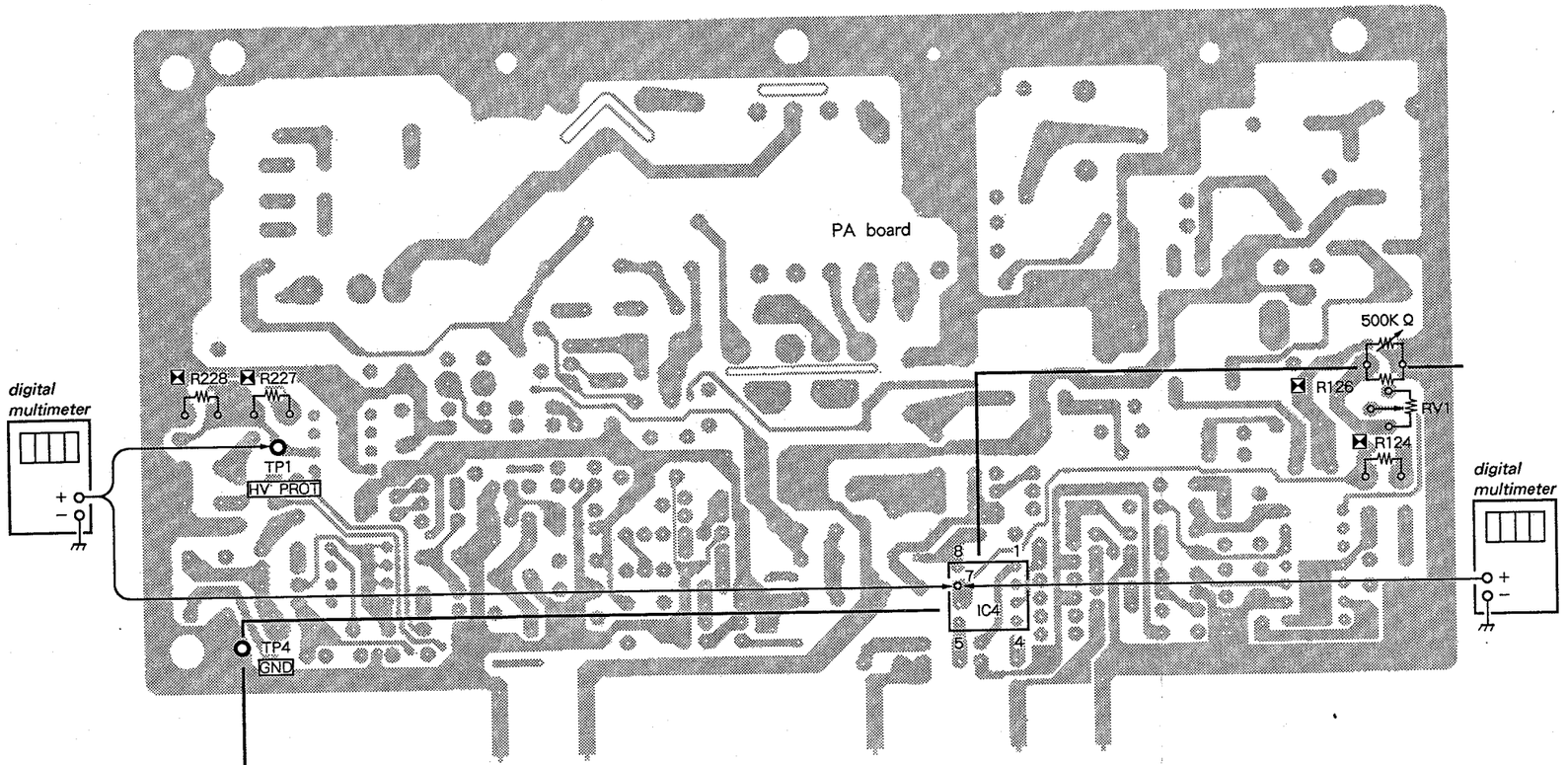
Note: Use an electrostatic multimeter which is calibrated, and which has $2 \times 10^9 \Omega$ or more input impedance.
(Example: ESH-27X or ESH-23X of the SINGER COMPANY)
Use a digital multimeter which has 4 digits or more.

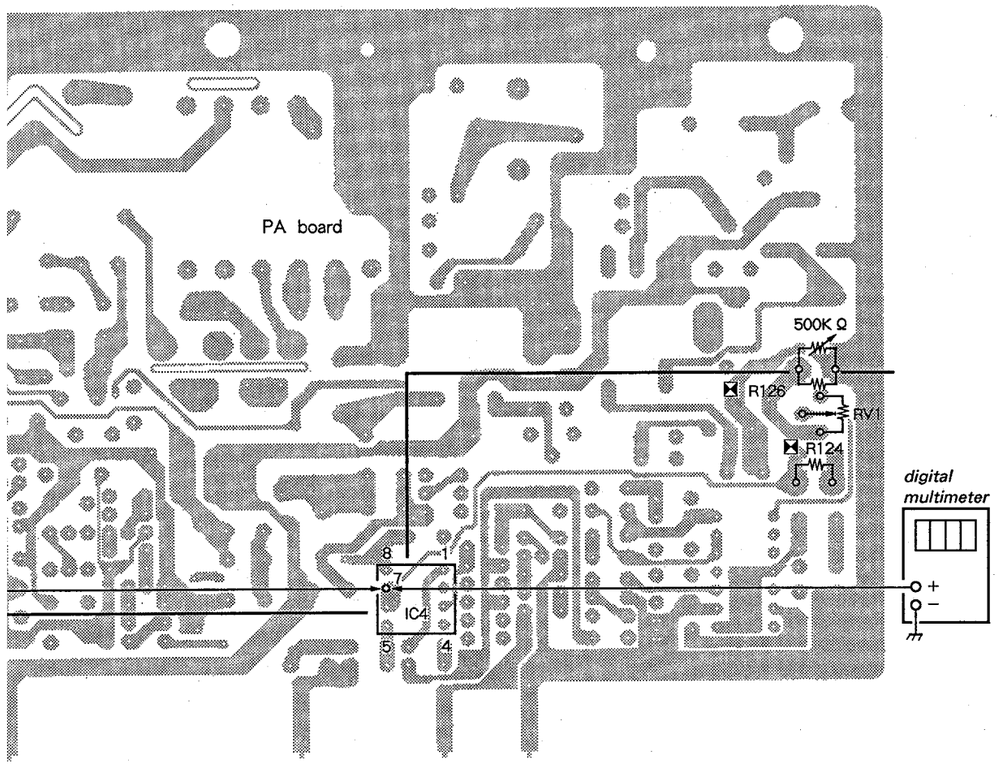
2. Receive a color bar signal and set the CONTRAST and BRIGHTNESS controls to the preset positions.
(manual switch is OUT ⊓)
3. Determine the values of R227 and R228 as to get voltage of 9.55 ± 0.13V at TP1.
4. Connect 500kΩ variable resistor with R126 in parallel on PA board.
5. Confirm that the reading on the electrostatic voltmeter drops abruptly from 28.0kV to 30.0kV to 0V by turning slowly the 500kΩ variable resistor so that the value of the resistor decrease from maximum value.
6. Remove the 500kΩ variable resistor from R126 and confirm again that the voltage of the anode is 27.0kV ± 0.1kV.

In case of not using an electrostatic voltmeter

(using a digital multimeter.)

1. Connect the digital multimeter to TP1 and TP4 (GND) and to Pin ⑦ of IC4 and TP4 (GND).
2. Receive a color bar signal and set the CONTRAST and BRIGHTNESS controls to the preset positions.
3. Determine the values of R227 and R228 as to get voltage of 9.40 ± 0.13V at TP1.
4. Connect 500kΩ variable resistor with R126 in parallel on PA board.
5. Confirm that the raster disappears when the voltage at Pin ⑦ of IC4 reaches 9.40 ± 0.13V by turning slowly the 500kΩ variable resistor so that the value of the resistor decrease from maximum value.
6. Remove the 500kΩ variable resistor from R126.





HIGH VOLTAGE REGULATOR CONFIRMATION

(⧓R124, R126)

When replacing the following components (marked ◪ on the schematic diagram), make this adjustment.

◪ DCT block

PA Board ··· D216, IC1, IC4, R123, R124, R125, R126, R136, R137, R138, R203, R204, RV1

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.

Even though an electrostatic voltmeter may not be used, connect digital multimeter to ⑦ pin of IC4 on PA Board.

Note: Use an electrostatic voltmeter which is calibrated, and which has $2 \times 10^9 \Omega$ or more input impedance.
example: ESH-27X or ESH-23X of the SINGER COMPANY
Use a digital multimeter which has 4 digit or more.

- **In case of using electrostatic voltmeter**

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual switch is out ⊓)
2. Turn RV1 on the PA Board for a maximum reading on the electrostatic voltmeter. (Fully clockwise)
3. Confirm that the indicated value on the electrostatic voltmeter is 27.40kV ± 0.1kV at this time.
4. If step 3 is not satisfied, select the value of R124 and R126 (1/4W metal-film) and repeat above steps 2 through 4.
5. After confirmation, adjust RV1 for 27.0kV ± 0.1 kV on the electrostatic voltmeter.

- **In case of using a digital multimeter**

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual switch is out ⊓)
2. Connect the digital multimeter to Pin ⑦ of IC4 and TP4 (GND) on PA board.
3. Set RV1 on PA board to its mechanical center.
4. Select resistance values for R124 and R126 which provide a voltage reading of 8.75V ± 0.1V at Pin ⑦ of IC4 and mount.

4-7. CIRCUIT ADJUSTMENTS

- To make the following adjustments, unless otherwise specified, the controls knobs and switches shall be preset as described below.

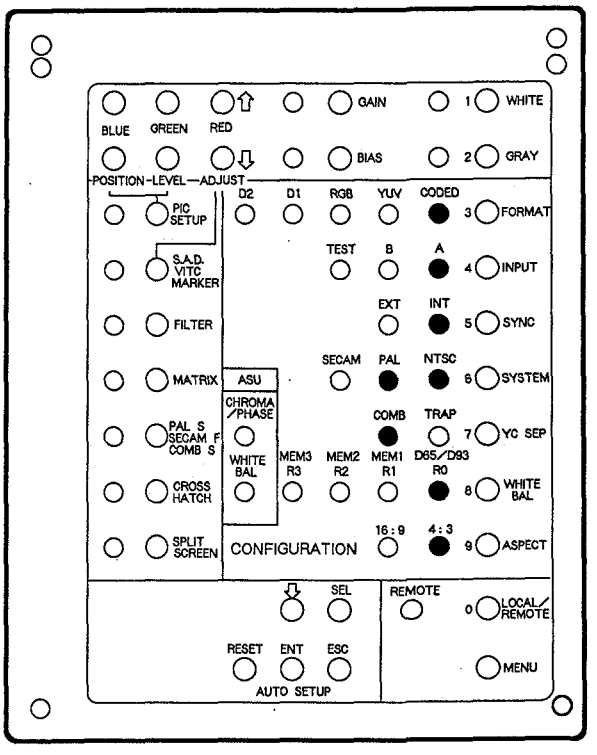
FRONT PANEL

- INPUT selector ..... 1 — HX board
- CONTRAST MANUAL switch ..... PRESET
- BRIGHTNESS MANUAL switch ... PRESET
- CHROMA MANUAL switch ..... PRESET
- PHASE MANUAL switch ..... PRESET — HW board
- SCAN MODE switch
  - UNDER SCAN ..... NOR
  - H. DELAY ..... NOR
  - V. DELAY ..... NOR
- SCREEN switch (R) ..... NOR
- SCREEN switch (G) ..... NOR
- SCREEN switch (B) ..... NOR
- APT switch ..... NOR
- BLUE ONLYswitch ..... NOR
- MODE selector ..... AUTO — HA board

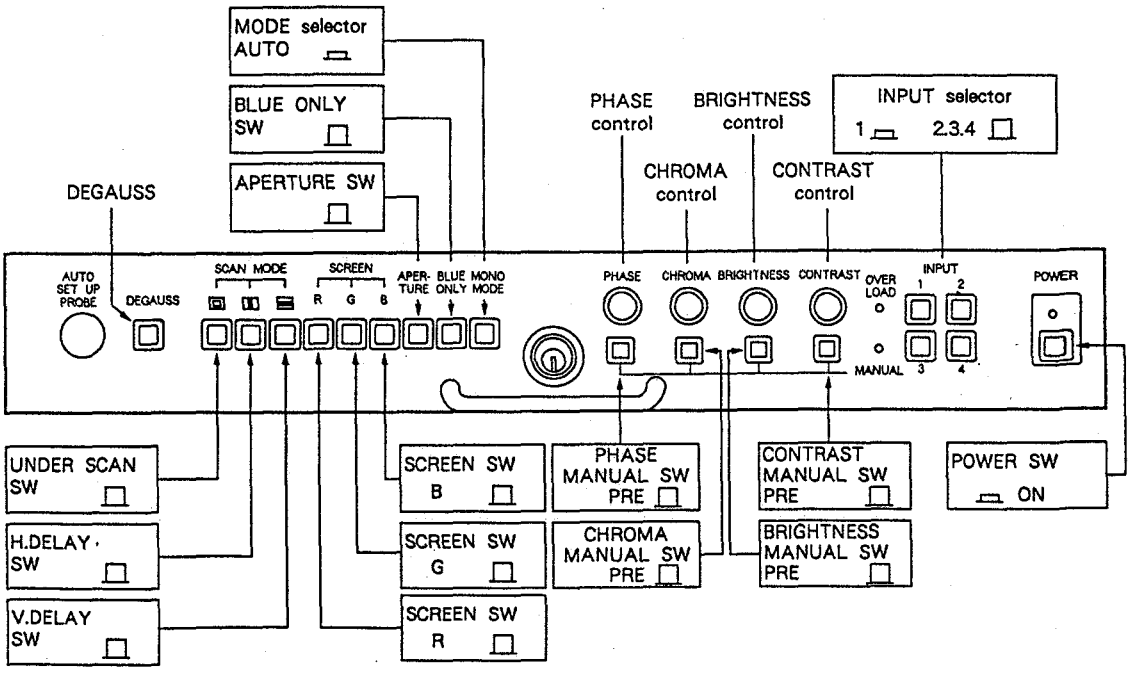
SUB CONTROL PANEL

- FORMAT button ..... CODED
- INPUT button ..... A
- SYNC button ..... INT
- COLOR SYSTEM button ..... NTSC / PAL
- YC SEP button ..... COMB / TRAP
- WHITE BALANCE button ..... COMB
- ASPECT button ..... 4 : 3
- PIC SETUP button ..... OFF
- SAD/VITC/MARKERbutton ..... OFF
- FILTER button ..... OFF
- MATRIX button ..... OFF
- PAL S/SECAM F/COMB S button . ..... OFF
- CROSS HATCH button ..... OFF
- SPLIT SCREEN button ..... OFF
- WHITE button ..... OFF
- GRAY button ..... OFF — HY board
- AFC switch ..... 2m sec — DA board

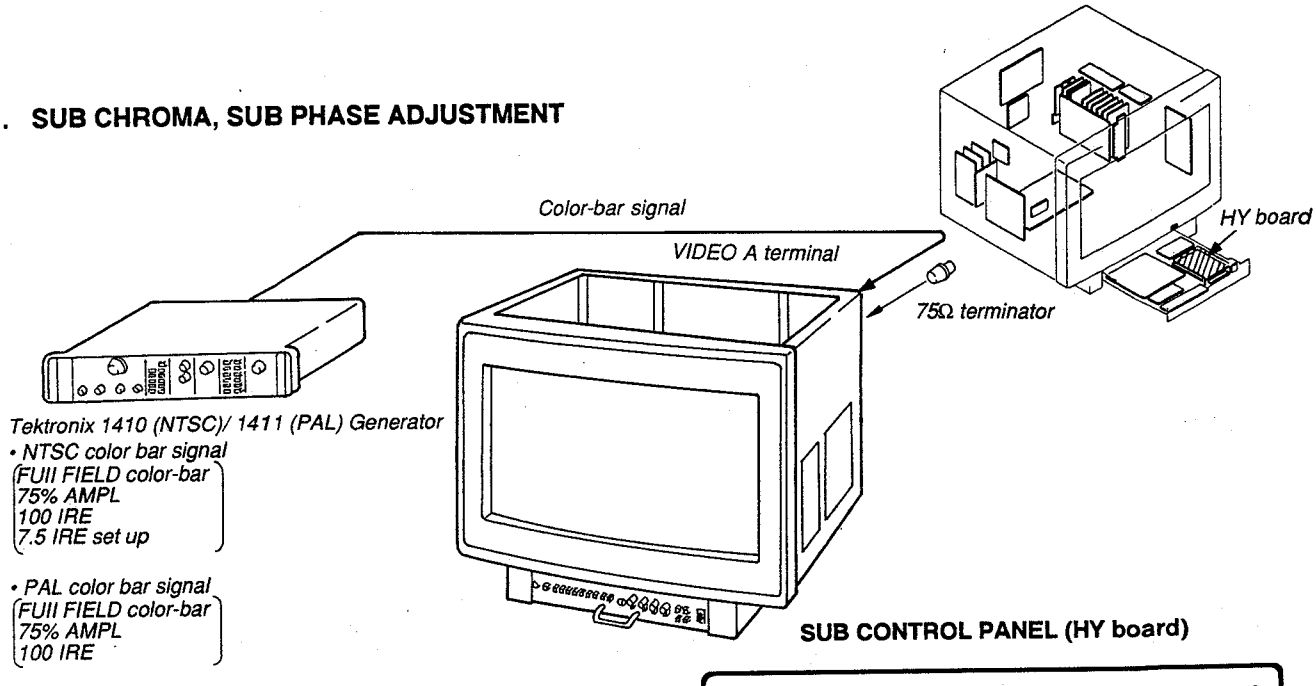
SUB CONTROL PANEL (HY board)



FRONT PANEL

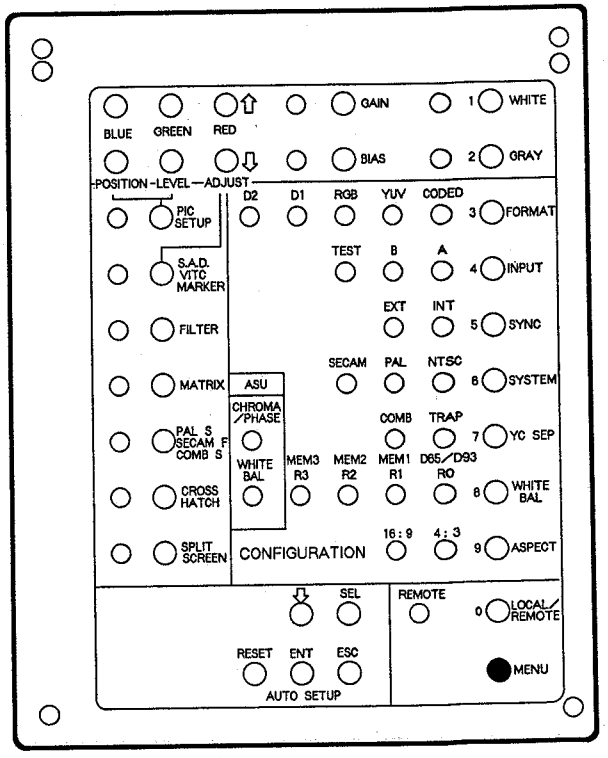


1. SUB CHROMA, SUB PHASE ADJUSTMENT

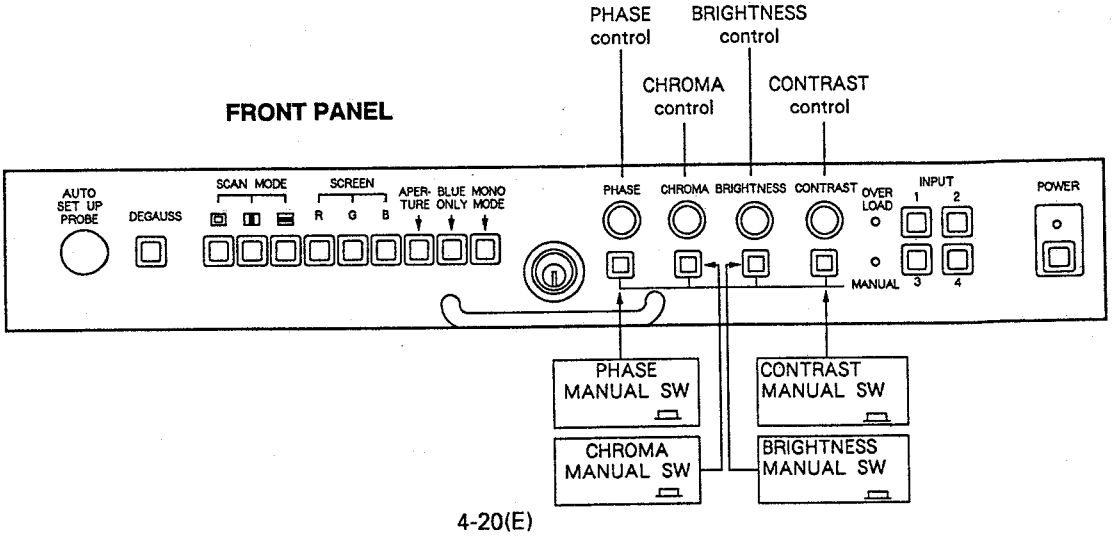


1. Press the MENU switch to select the PRESET menu.
2. CONTRAST, BRIGHT, CHROMA, PHASE MANUAL switch (FRONT PANEL) ·····MANUAL
3. Turn each volume control to adjust so that the value on the screen becomes 100.
4. Save the DATA.

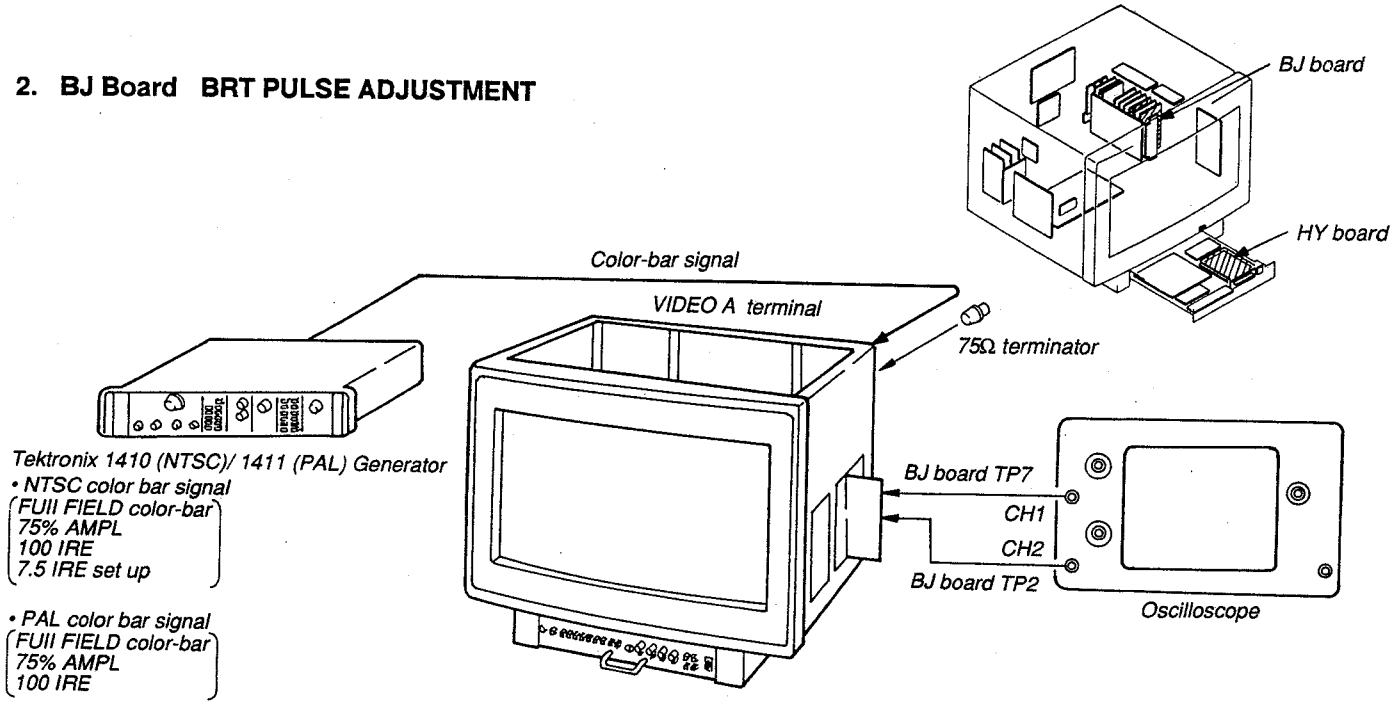
SUB CONTROL PANEL (HY board)



FRONT PANEL



2. BJ Board BRT PULSE ADJUSTMENT



1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope (CH1 probe) to the TP7 of BJ board and oscilloscope (CH2 probe) to the TP2 of BJ board.
3. Adjust RV7 to obtain the waveform on the oscilloscope as shown in Fig. 2-1.

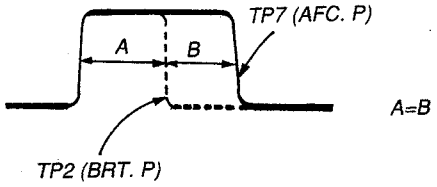
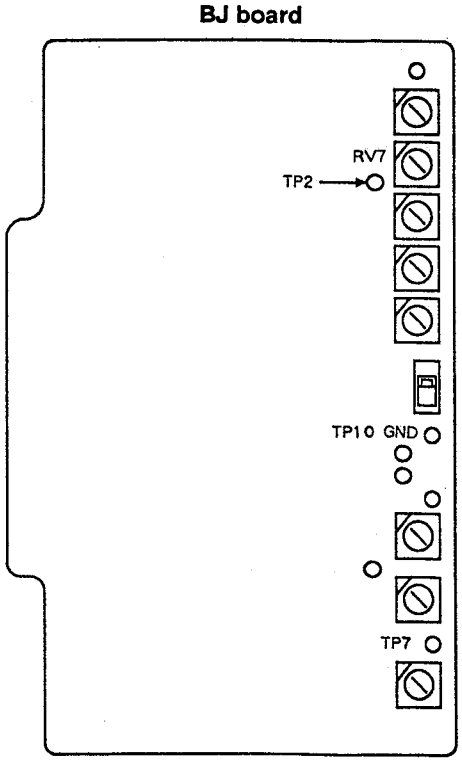
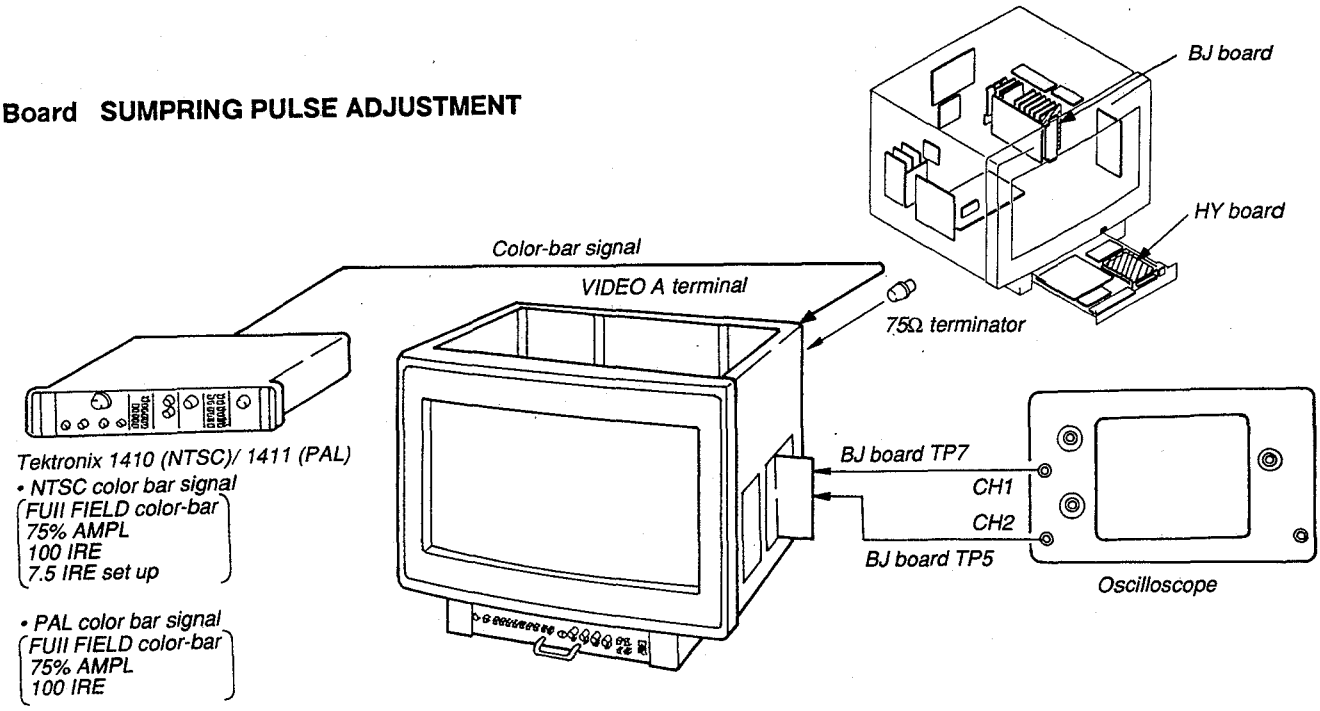


Fig. 2-1.



BJ Board SUMPRING PULSE ADJUSTMENT



1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope (CH1 probe) to the TP7 of BJ board and connect an oscilloscope (CH2 probe) to the TP5 of BJ board.
3. Adjust RV5 to obtain the waveform on the oscilloscope as shown in Fig. 2-2.

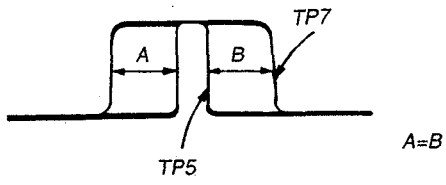
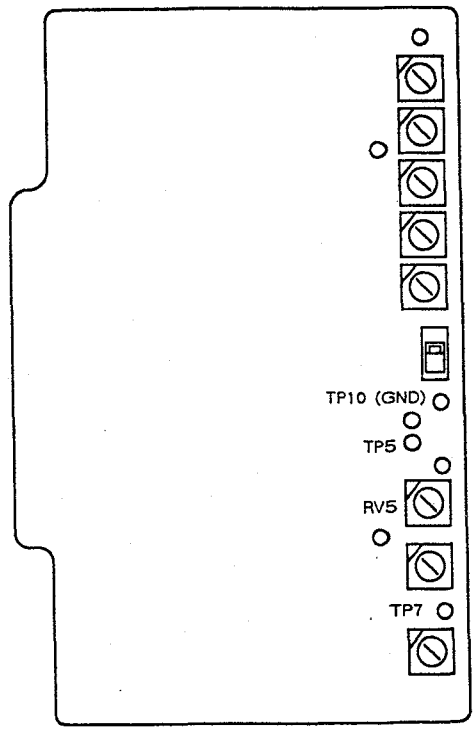
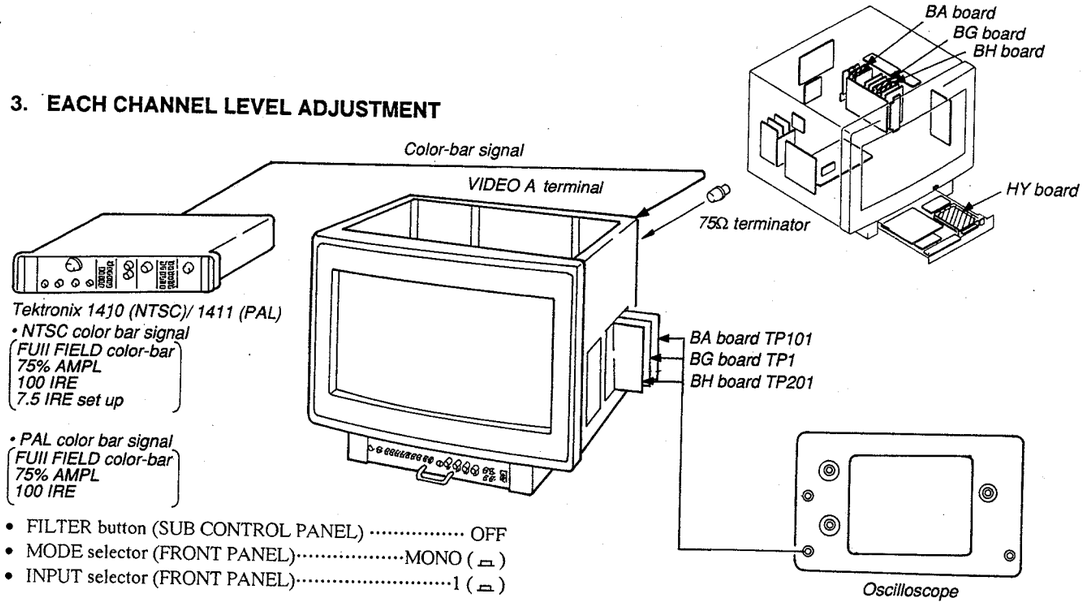


Fig. 2-2.

BJ board



3. EACH CHANNEL LEVEL ADJUSTMENT



- FILTER button (SUB CONTROL PANEL) ..... OFF
- MODE selector (FRONT PANEL)..... MONO (⎓)
- INPUT selector (FRONT PANEL)..... 1 (⎓)

BA board

1. Input a color-bar signal to VIDEO A terminal to the set.
2. Connect an oscilloscope to the TP101 of BA board.
3. Adjust to 1.0 Vp-p with RV101 of BA board as shown in Fig. 3-1.

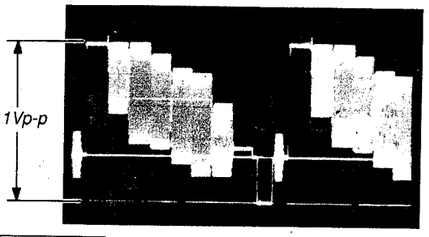


Fig. 3-1

BG board

4. Connect an oscilloscope to the TP1 of BG board.
5. Adjust to 1.0 Vp-p with RV3 of BG board as shown in Fig. 3-1.
6. Connect an oscilloscope to the TP201 of BH board.
7. Adjust FRONT BRT VR so that Ⓐ (black level) is 0V DC as shown in Fig. 3-2.
8. Adjust FRONT CONT VR so that Ⓑ (100% white level) is –0.7V DC as shown in Fig. 3-2.

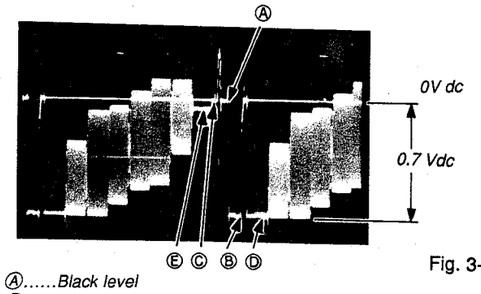


Fig. 3-2.

Ⓐ.....Black level
Ⓑ.....100% White level
Ⓒ.....0 IRE level
Ⓓ.....100 IRE level
Ⓔ.....7.5 IRE level

BH board

9. S2 (BH Board) ..... 0 IRE
   Adjust RV1 of BH board so that the Ⓒ (0 IRE level) coincides with Ⓐ (Black level) as shown in Fig. 3-3.
10. Adjust RV3 of BH board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-3.

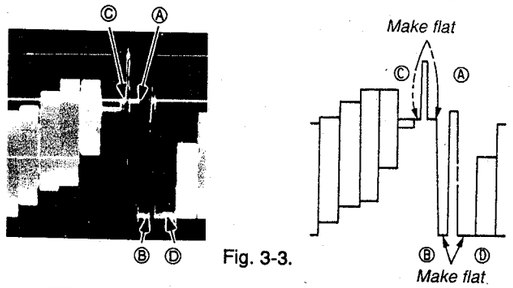


Fig. 3-3.

BH board

11. S2 (BH Board) ..... 7.5 IRE
    Adjust RV2 of BH board so that the Ⓔ (7.5 IRE level) coincides with Ⓐ (Black level) as shown in Fig. 3-4.
12. Set S2 (BH Board) to 0 IRE.

Note: When using the NTSC signal with 7.5% setup, set to AUTO.

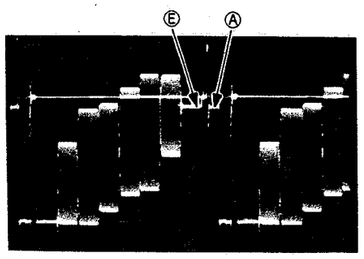
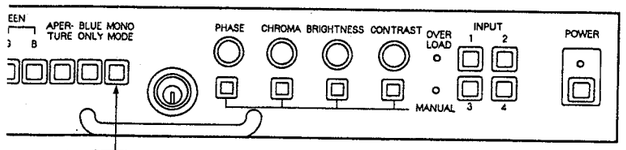
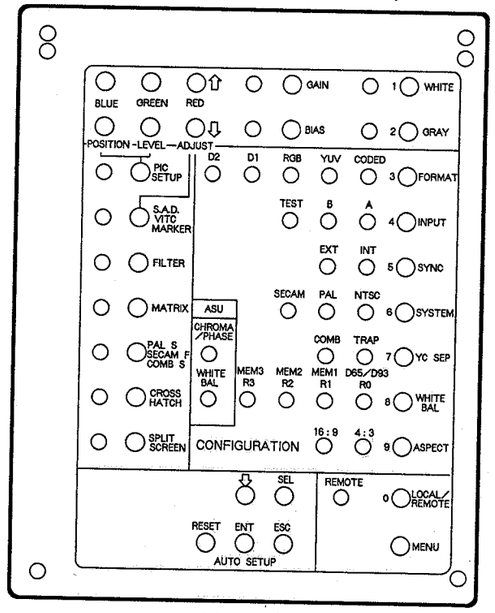


Fig. 3-4.

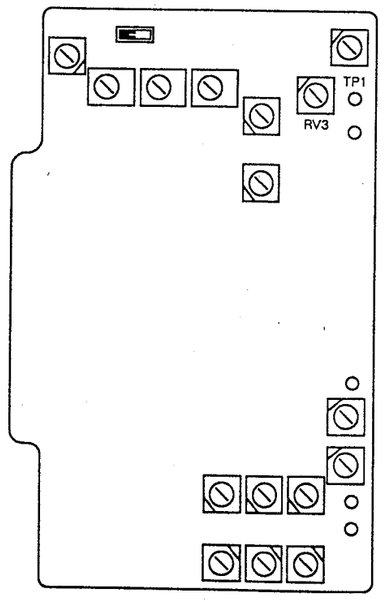
FRONT PANEL



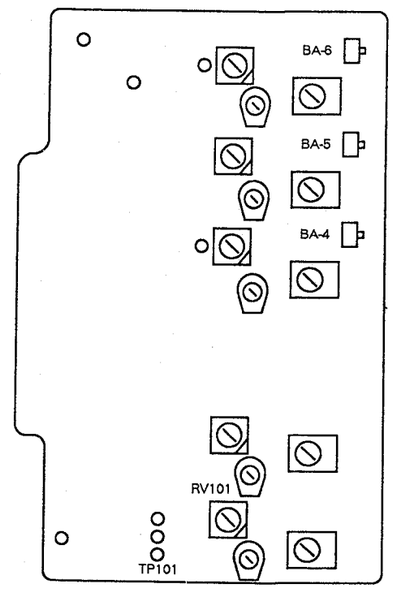
SUB CONTROL PANEL (HY board)



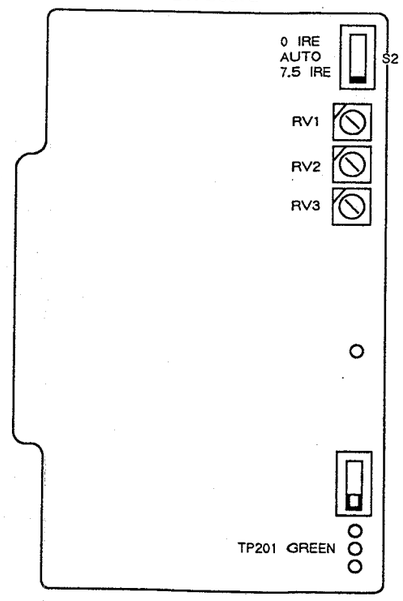
BG board



BA board



BH board



BA board

13. Complete the connection as shown in Fig. 3-5.
- SYNC buttons (SUB CONTROL PANEL)····· EXT
- FORMAT button (SUB CONTROL PANEL) ····· RGB

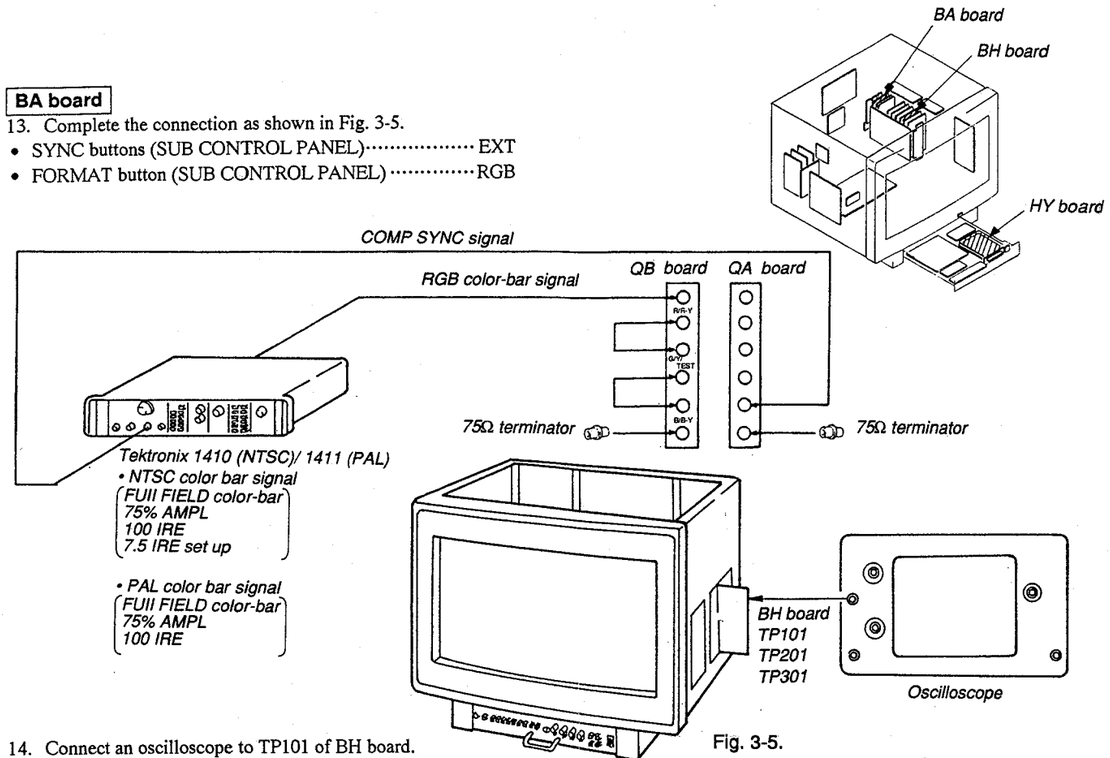


Fig. 3-5.

14. Connect an oscilloscope to TP101 of BH board.
15. Adjust RV401 of BA board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-6.
16. Connect an oscilloscope to TP201 of BH board.
17. Adjust RV501 of BA board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-6.
18. Connect an oscilloscope to TP101 of BH board.
19. Adjust RV601 of BA board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 3-6.

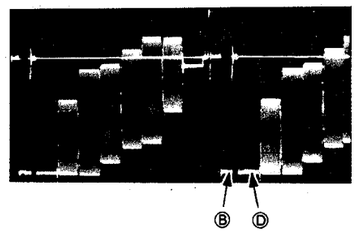
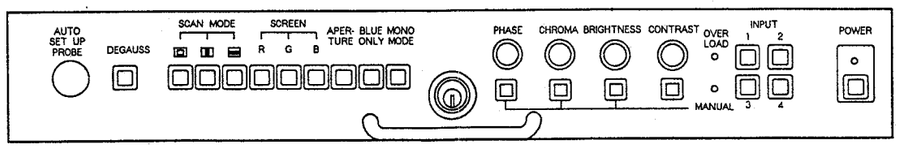
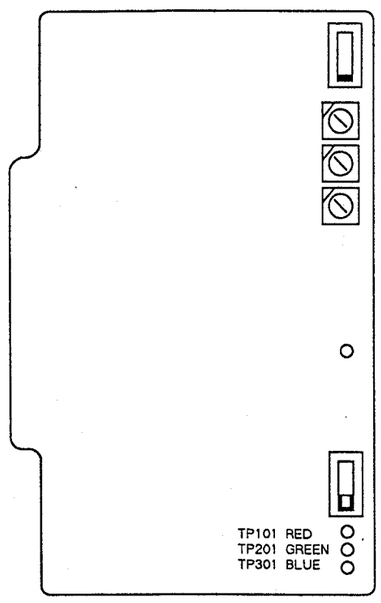


Fig. 3-6.

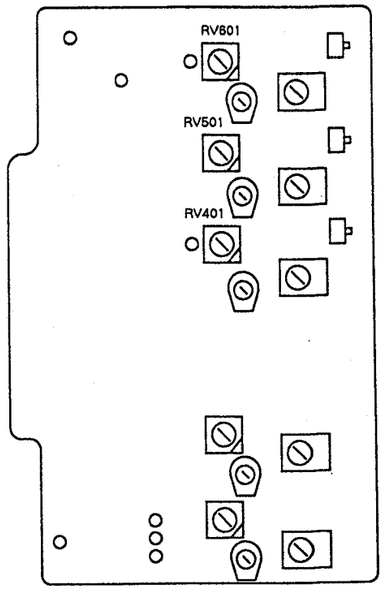
FRONT PANEL



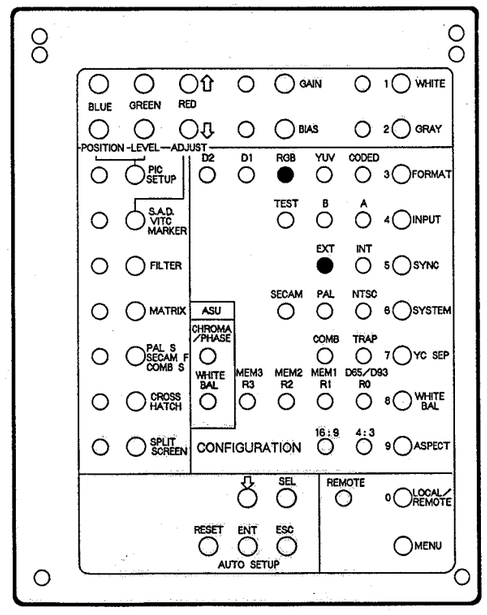
BH board



BA board



SUB CONTRAST PANEL (HY board)



4. BA Board INPUT CIRCUIT FREQUENCY CHARACTERISTIC ADJUSTMENT

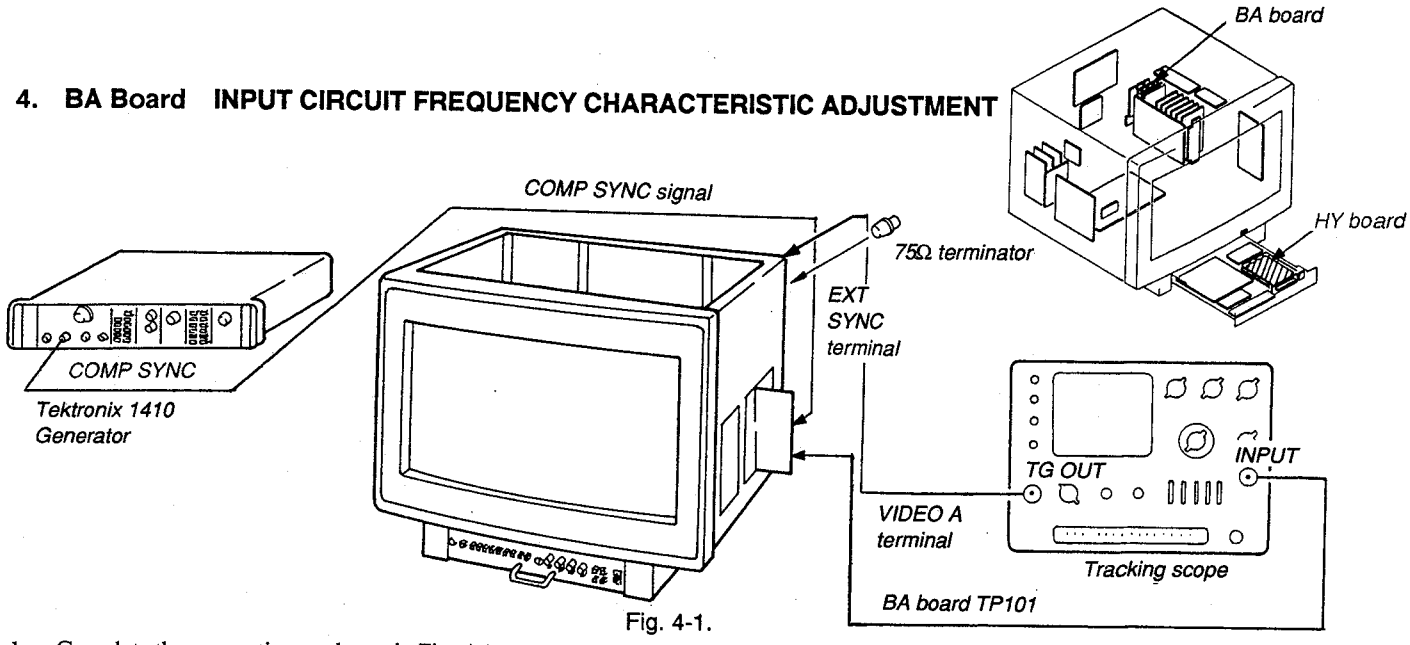


Fig. 4-1.

1. Complete the connection as shown in Fig. 4-1.
- FORMAT button (SUB CONTROL PANEL) ····· CODED
- INPUT selector (FRONT PANEL)·····1
- SYNC button (SUB CONTROL PANEL)····· EXT
- CONTRAST control (FRONT PANEL) ·····Minimum
- BRIGHTNESS control (FRONT PANEL) ·····Minimum

2. Adjust CV101 so that minimum as shown in Fig. 4-2.

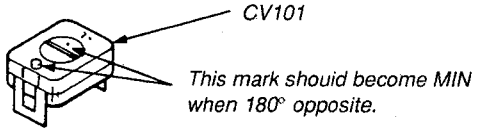


Fig. 4-2.

3. Adjust output waveform peak to 12 MHz with CV102 of the BA board as shown in Fig. 4-3.

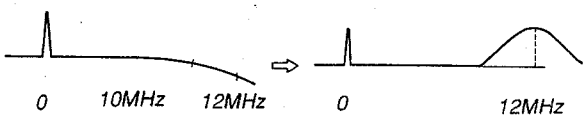


Fig. 4-3.

4. Adjust CV101 of the BA board so that the output waveform becomes flat in a range of 0 to 10 MHz as shown in Fig. 4-4.

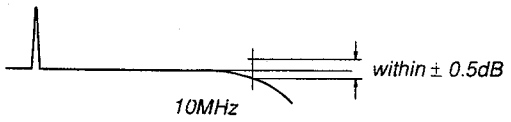
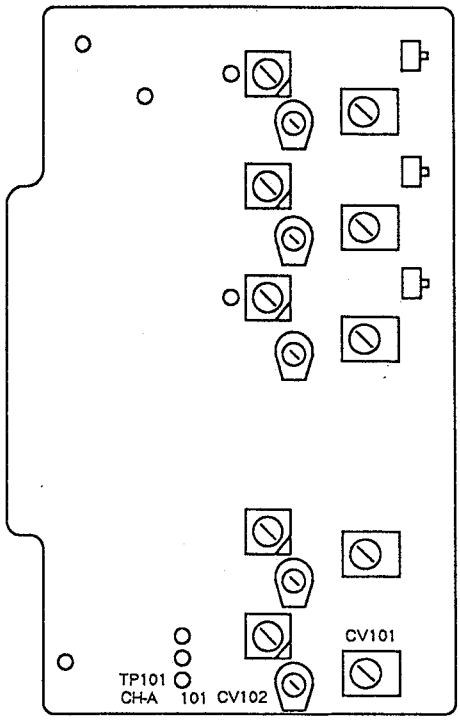
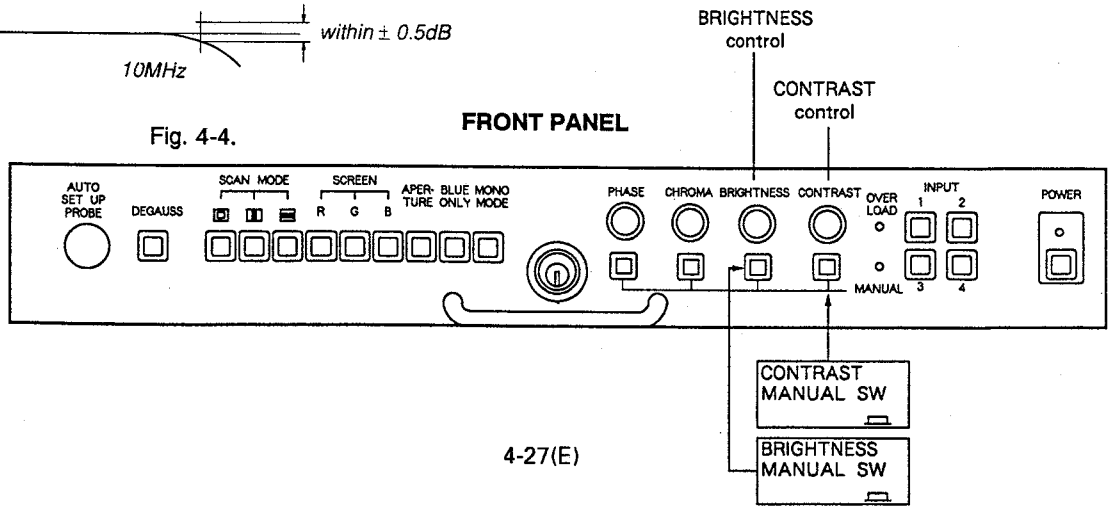


Fig. 4-4.

BA board



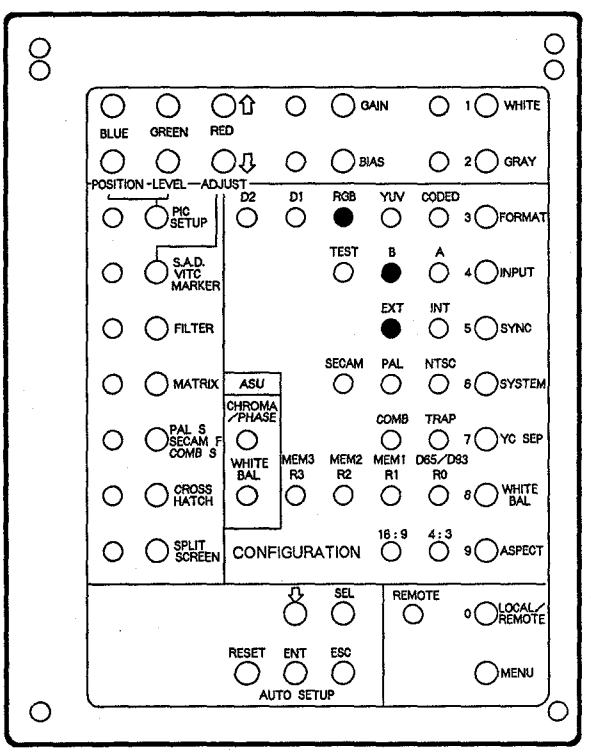
FRONT PANEL



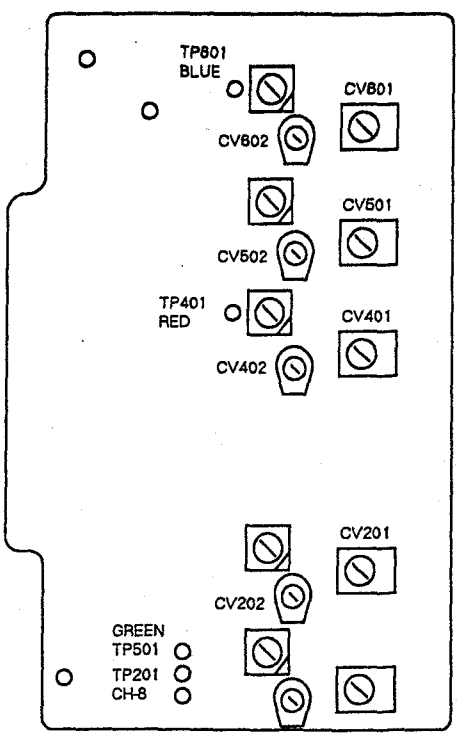
5. In the same way, perform the adjustment for 2 CH, under the following conditions.

INPUT	INPUT button (SUB CONTROL PANEL)	FORMAT button (SUB CONTROL PANEL)	TP (BA board)	CV (BA board)
B	B	CODED	TP201	CV201, 202
R/R-Y		RGB	TP401	CV401, 402
G/Y/TEST		RGB	TP501	CV501, 502
B/B-Y		RGB	TP601	CV601, 602

SUB CONTRAST PANEL (HY board)



BA board



5. BG Board FREQUENCY CHARACTERISTIC ADJUSTMENT

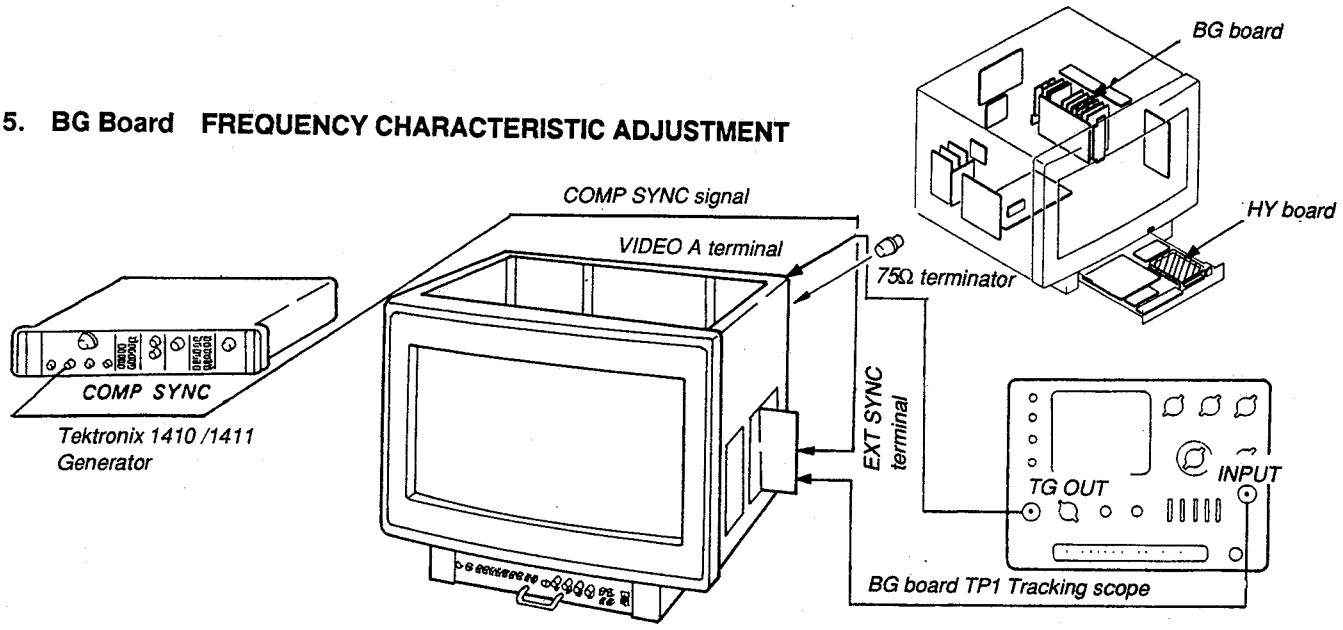


Fig. 5-1.

1. Complete the connection as shown in Fig. 5-1.
   - SYNC button (SUB CONTROL PANEL)..... EXT
   - CONTRAST control .....Minimum
   - BRIGHTNESS control .....Minimum
   - S1 (BG Board) ..... 4.5 MHz (4.5 [6.5] 6.5)
2. Adjust RV1, CV2 and CV3 of the BG board so that the output waveform becomes flat in a range of 0 to 10 MHz as shown in Fig. 5-2. (within 0 ± 0.5 dB)
   * Waveform movement by RV1, CV2, CV3

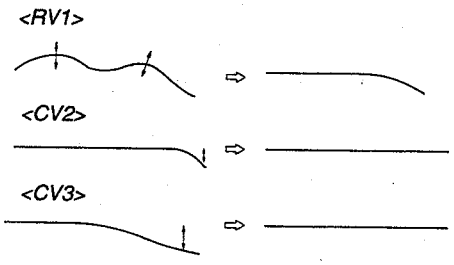
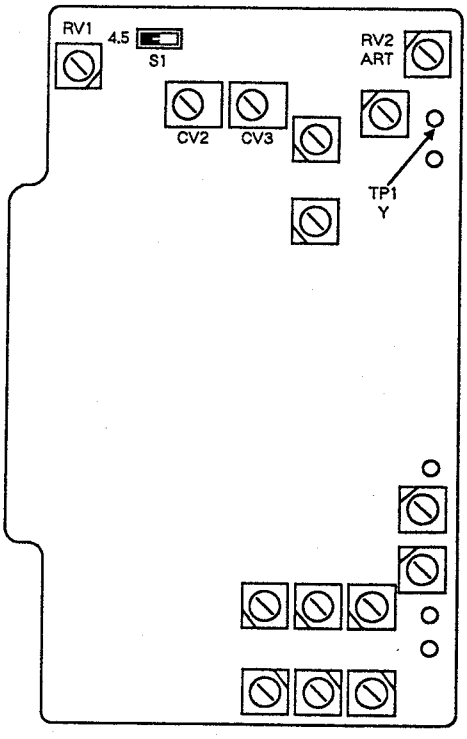


Fig. 5-2.

BG board



3. Adjust with RV2 (BG board) to the position in which the APT (Fig. 5-3.) begins to become effective.

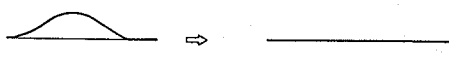
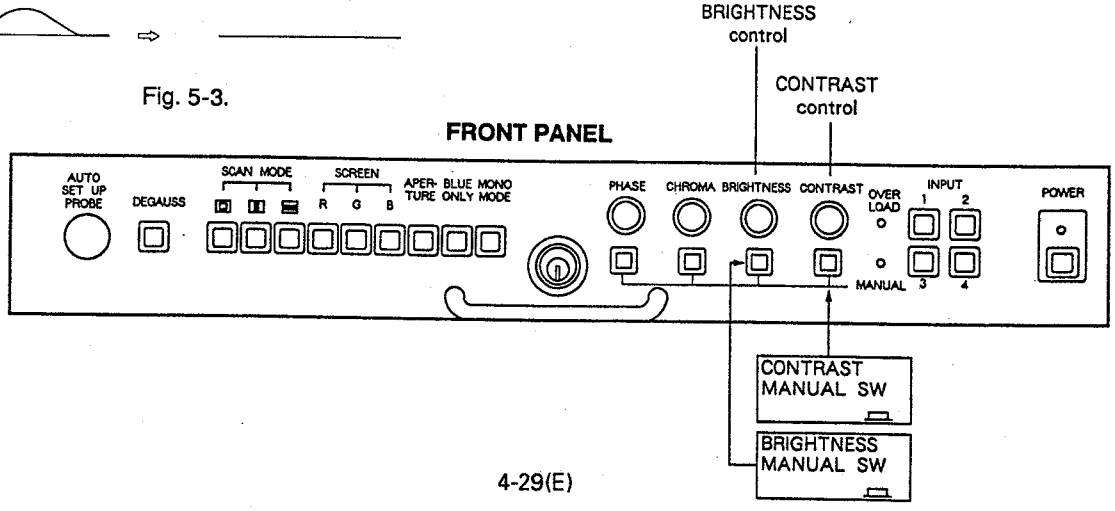


Fig. 5-3.



6. COMPONENT INPUT LEVEL ADJUSTMENT

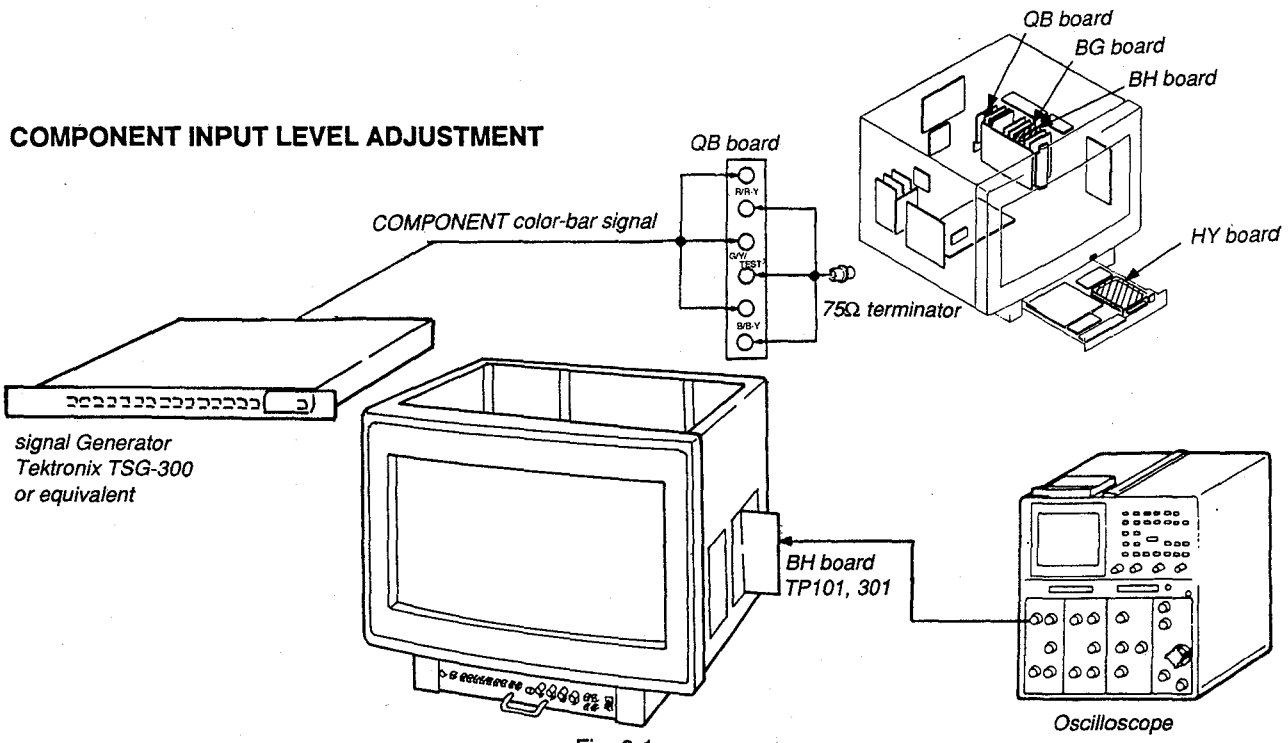


Fig. 6-1.

1. Complete the connections as shown in Fig. 6-1.
   - FORMAT button (SUB CONTROL PANEL)····· YUV
2. Connect an oscilloscope to the TP101 of BH board.
3. Adjust RV21 of BG board so that the output waveform becomes flat. (Fig. 6-2.)

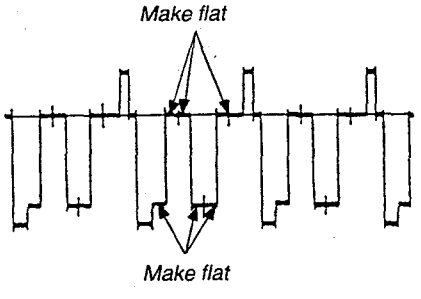


Fig. 6-2.

4. Connect an oscilloscope to the TP301 of BH board.
5. Adjust RV22 of BG board so that the input waveform becomes flat. (Fig. 6-3.)

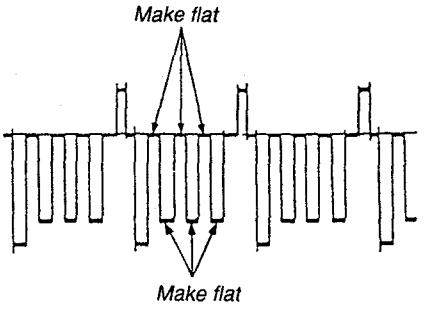
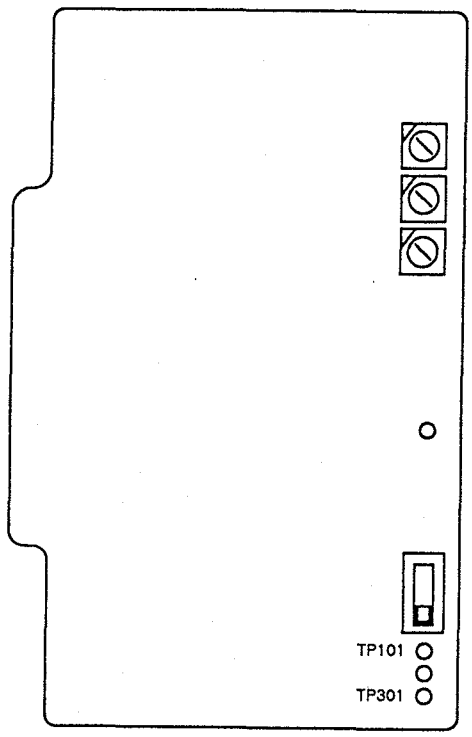
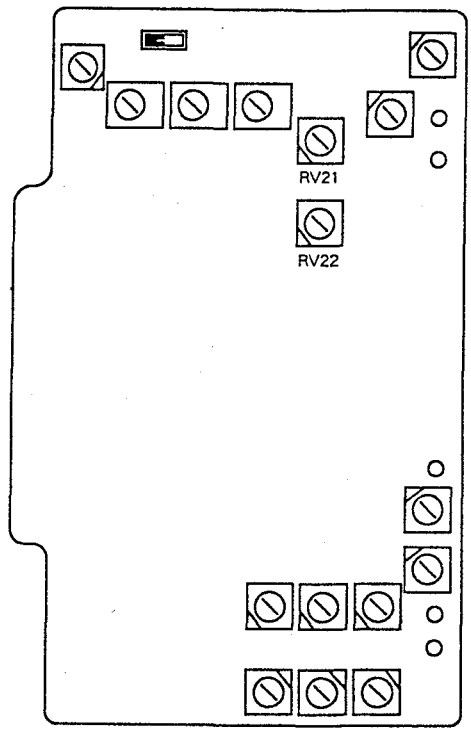


Fig. 6-3.

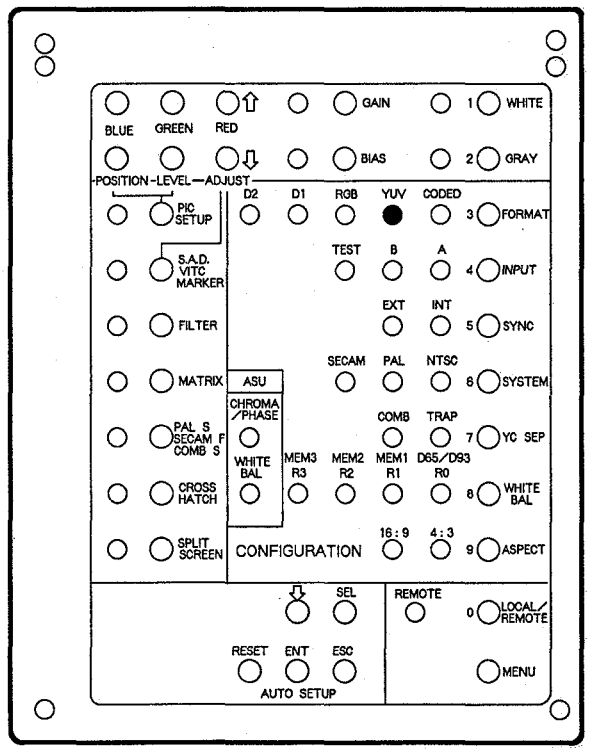
BH board



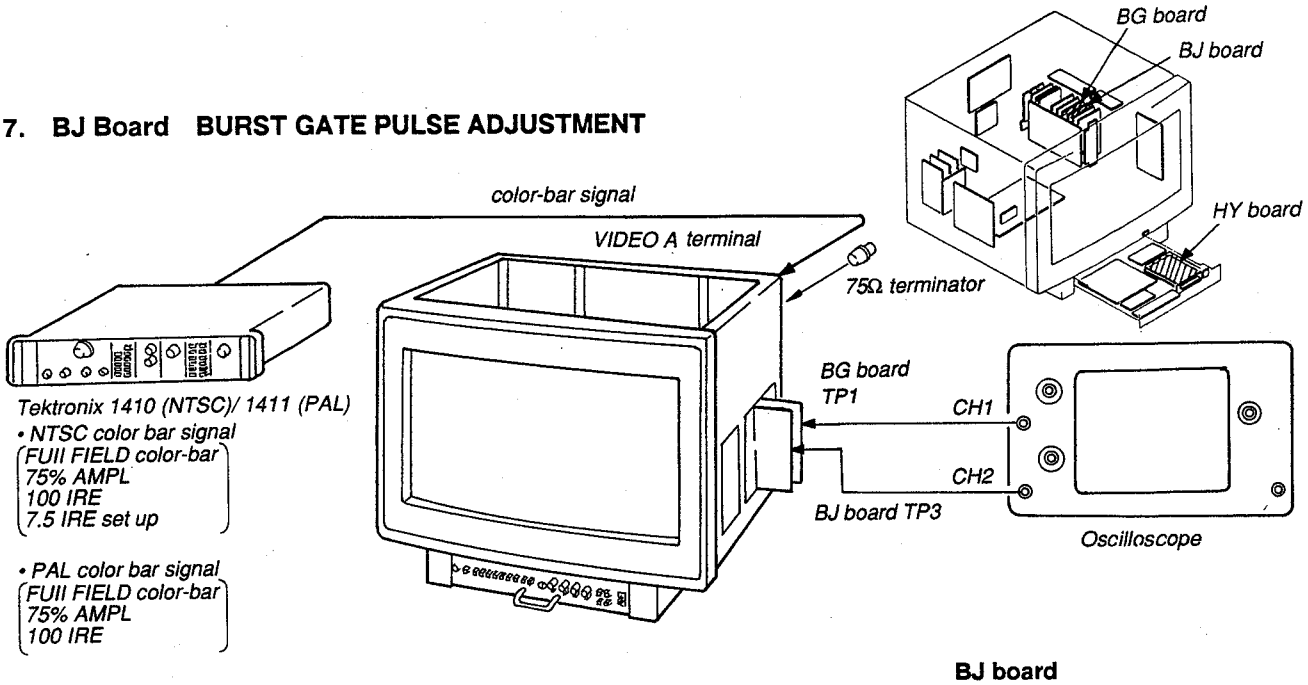
BG board



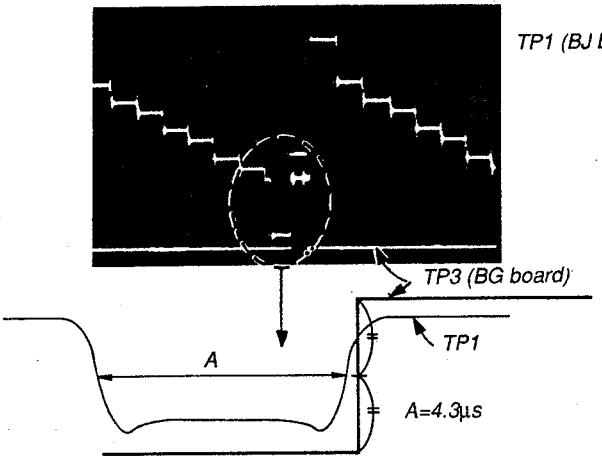
SUB CONTRAST PANEL (HY board)



7. BJ Board BURST GATE PULSE ADJUSTMENT



1. Input a color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP3 of BJ board.
3. Adjust RV8 of BJ board so that the with A width is 4.3 μs as shown in Fig. 7-1.



* Adjust (A), from SYNC fall to B.G.P. (BURST GATE PULSE) rise, to 4.3 μs.

Fig. 7-1.

4. Adjust RV4 of BJ board so that the burst gate pulse width is 3.9 μs as shown in Fig. 7-2.

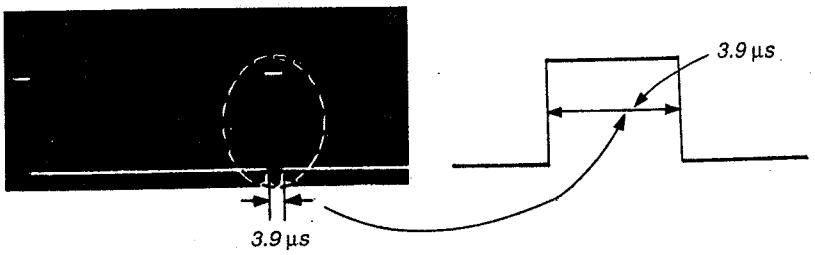
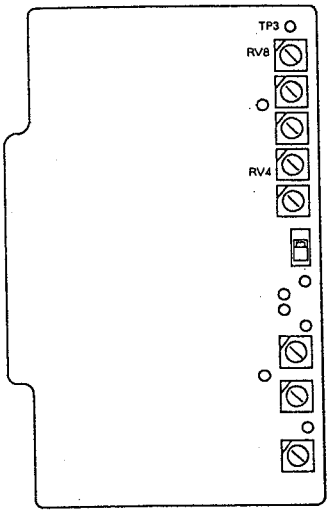
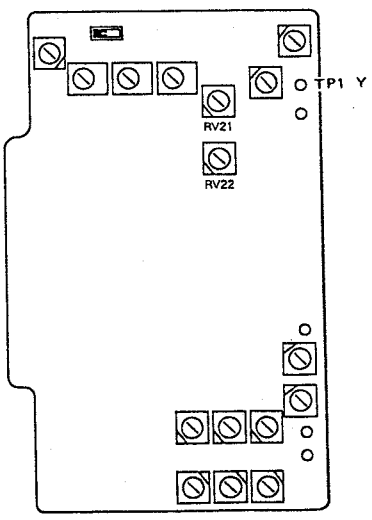


Fig. 7-2.

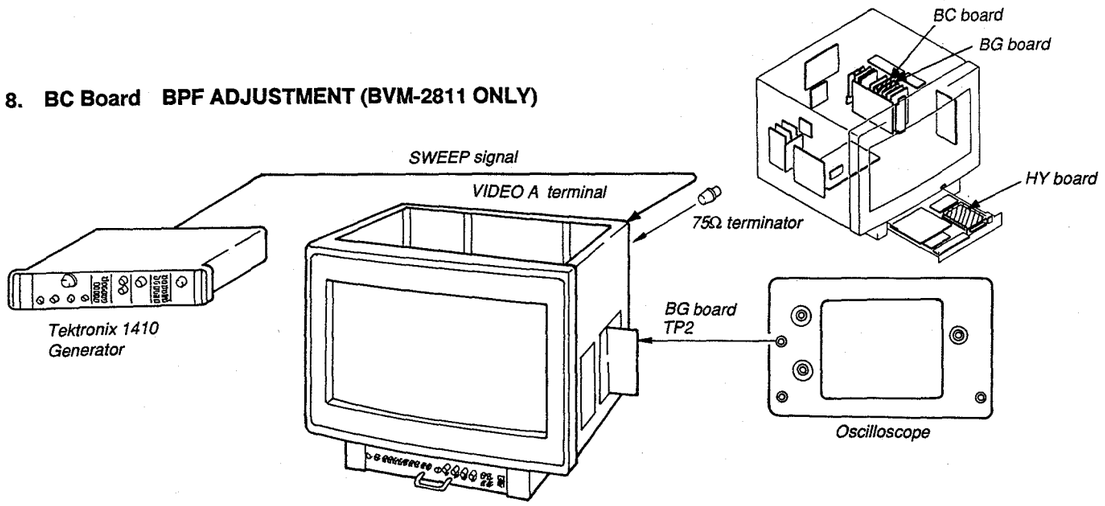
BJ board



BG board



8. BC Board BPF ADJUSTMENT (BVM-2811 ONLY)



- YC SEP button (SUB CONTROL PANEL)····· TRAP

1. Input SWEEP signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 on the BG board.
3. Make the V/dw of oscilloscope into VARIABLE, and match the upper section of waveform to 7 div as shown in Fig. 8-1.

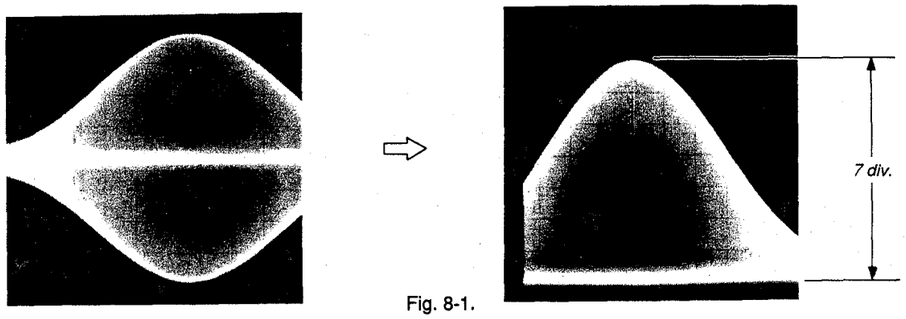


Fig. 8-1.

4. Adjust L3 on the BC board so that A is equal to B as shown in Fig. 8-2.

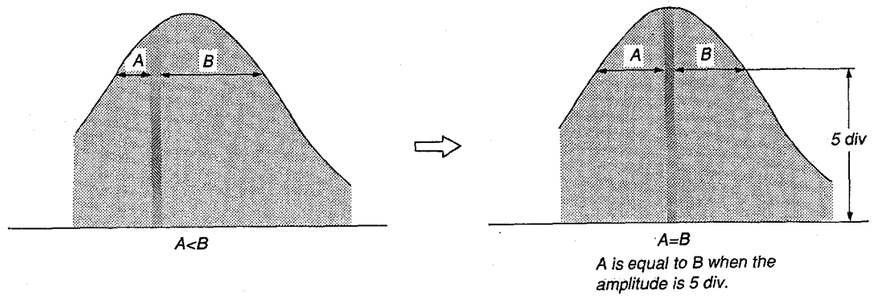
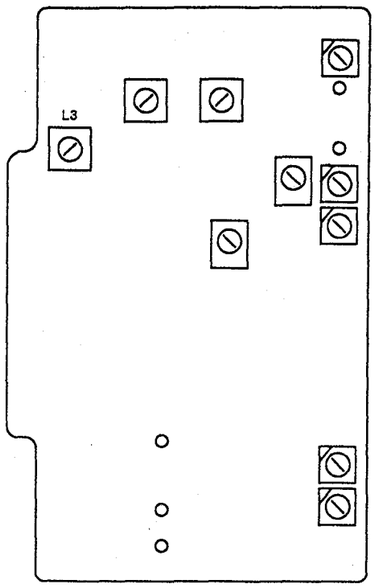
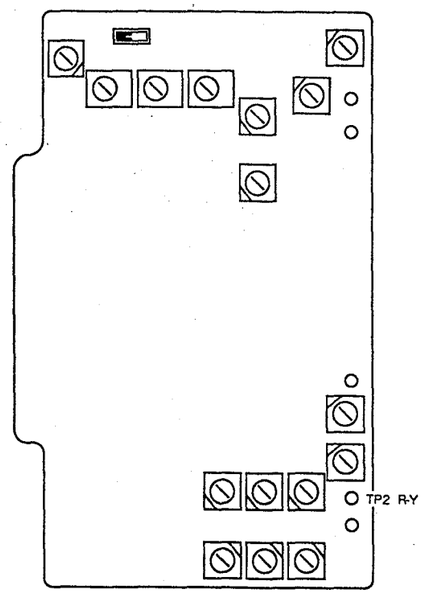


Fig. 8-2.

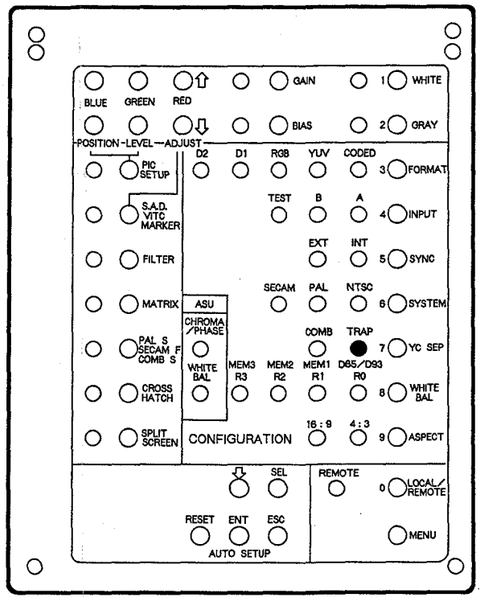
BC board



BG board



SUB CONTRAST PANEL (HY board)



9. BC Board PHASE SHIFT ADJUSTMENT (BVM-2811 ONLY)

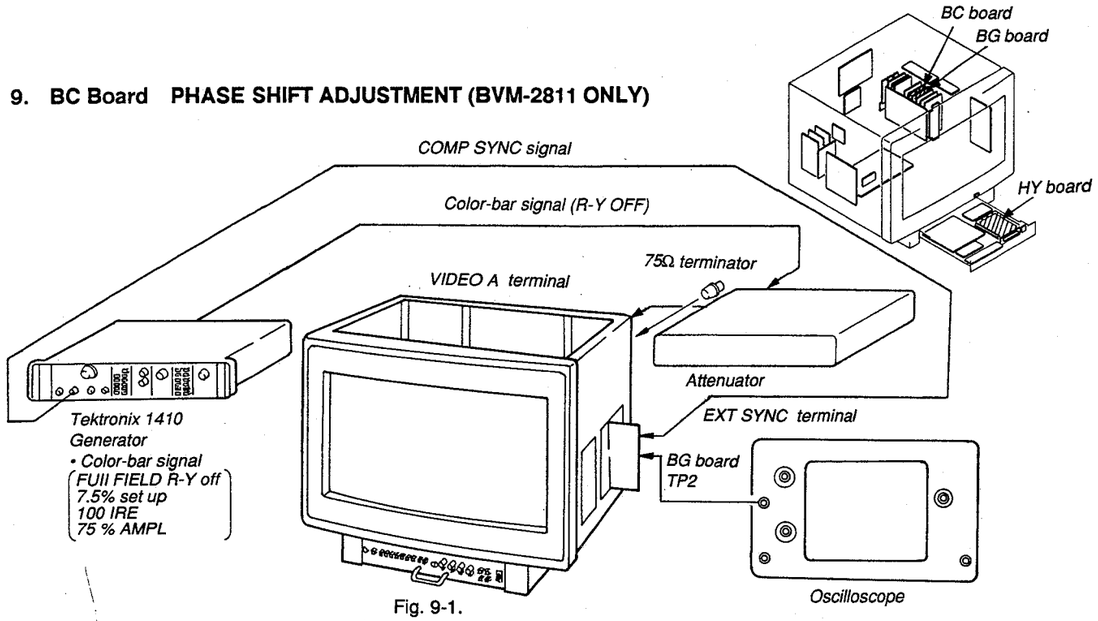


Fig. 9-1.

1. Complete the connection as shown in Fig. 9-1.
   - COLOR SYSTEM (SUB CONTROL PANEL) ···· NTSC
   - FORMAT button (SUB CONTROL PANEL) ··· CODED
   - YC SEP button (SUB CONTROL PANEL) ····· TRAP
   - SYNC button (SUB CONTROL PANEL)····· EXT
2. Connect an oscilloscope to the TP2 on the BG board.
3. Make the waveform flat with the PHASE control of front panel as shown in Fig. 9-2.
4. Attenuate the signal by 10 dB by using attenuator.
5. Adjust RV3 on the BC board so that the output waveform becomes flat as shown in Fig. 9-2.
6. Restore the attenuator to 0 dB.
7. Repeat the steps 3 to 5.

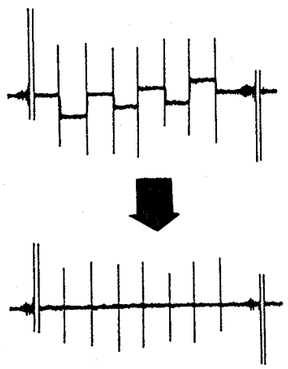
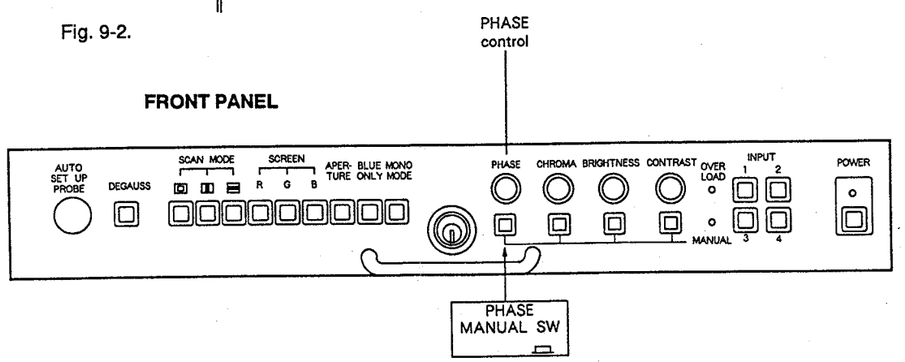
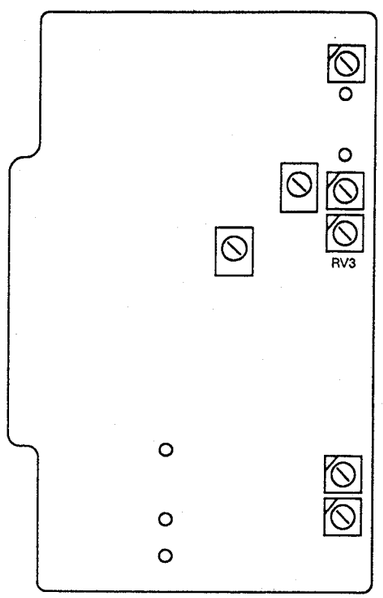


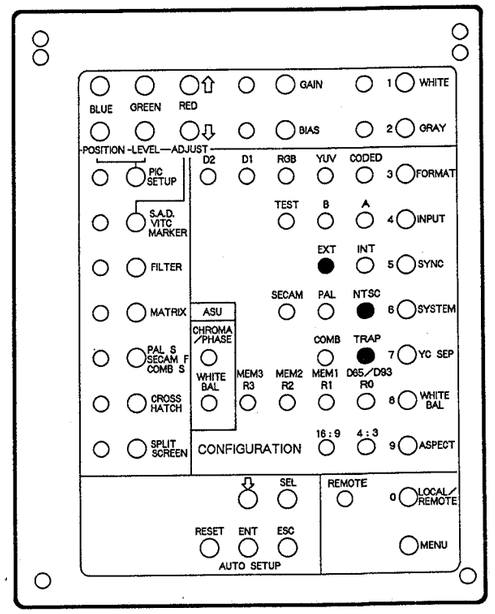
Fig. 9-2.



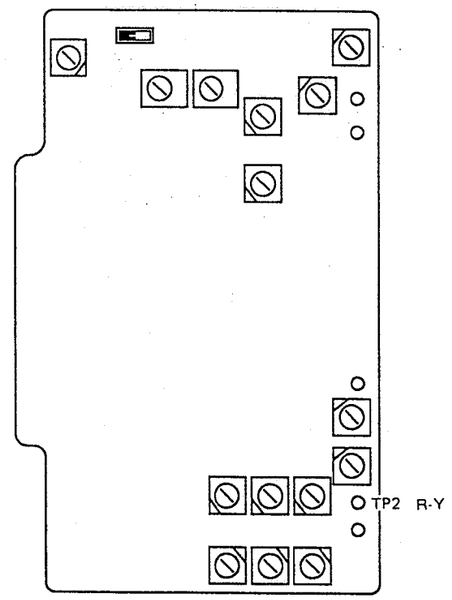
BC board



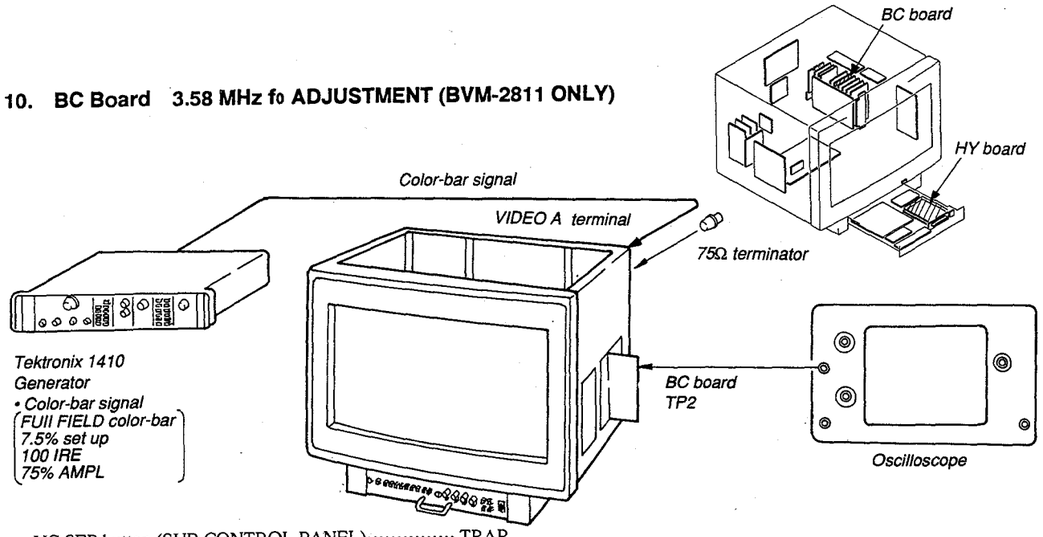
SUB CONTRAST PANEL (HY board)



BG board



10. BC Board 3.58 MHz fo ADJUSTMENT (BVM-2811 ONLY)



• YC SEP button (SUB CONTROL PANEL)..... TRAP

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 of BC board.
3. Short-circuit between TP6 and TP7 of BC board with a jumper wire.
4. Adjust CV2 of BC board so that the output waveform is shifted slowly as shown in Fig. 10-1.
5. Turn off the power of this monitor, and disconnect TP6 and TP7 of BC board.

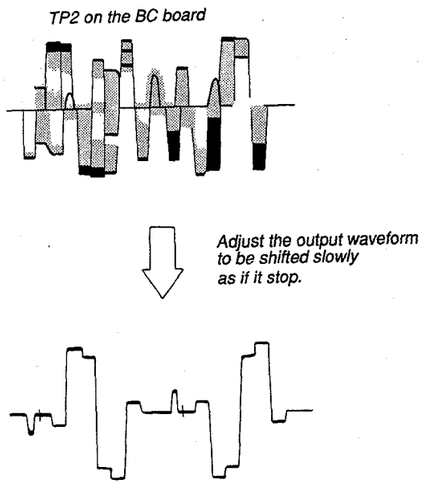
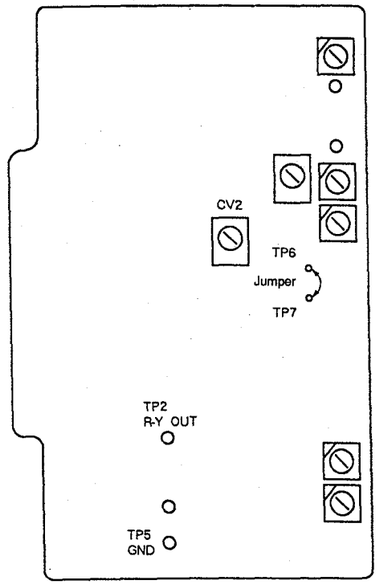
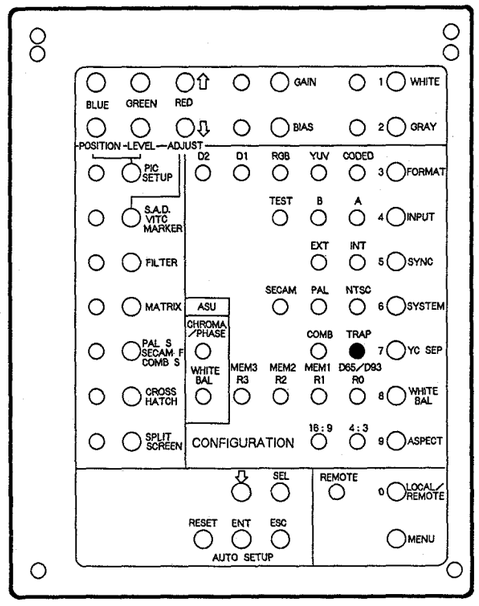


Fig. 10-1.

BC board



SUB CONTRAST PANEL (HY board)



11. BC Board COLOR DIFFERENCE PHASE ADJUSTMENT (BVM-2811 ONLY)

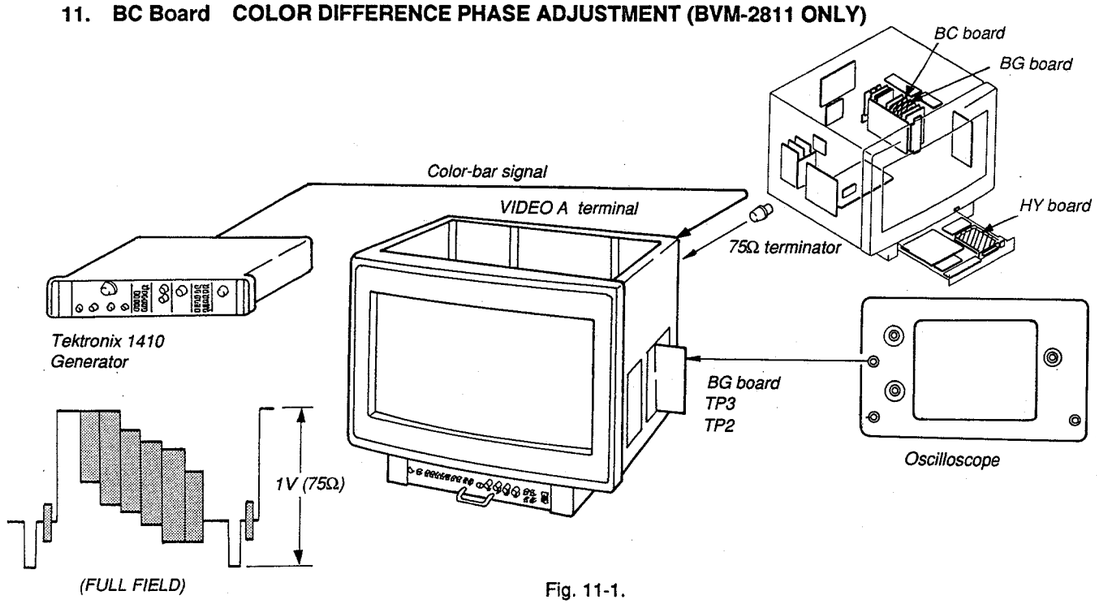


Fig. 11-1.

- YC SEP button (SUB CONTROL PANEL)····· TRAP

1. Complete the connections as shown in Fig. 11-1.
2. Turn on the power of this monitor.

B-Y System Adjustment

3. Connect the oscilloscope probe to TP3 on the BG board, and turn off the (B-Y) signal of the signal generator.
4. Set the oscilloscope sensitivity to 20 mV/DIV, and adjust RV2 on the BC board so that the output waveform is flat. (See Fig. 11-2.)

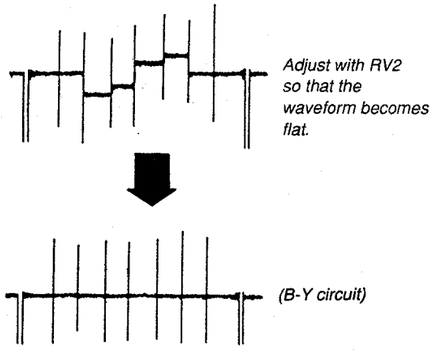


Fig. 11-2.

Quad Adjustment

5. Connect the oscilloscope probe to TP2 on the BG board. Turn on the B-Y signal of the signal generator, and turn off the (R-Y) signal. Then adjust CV1 on the BC board so that the output waveform is flat. (See Fig. 11-3.)
6. Repeat the steps 3 to 6.

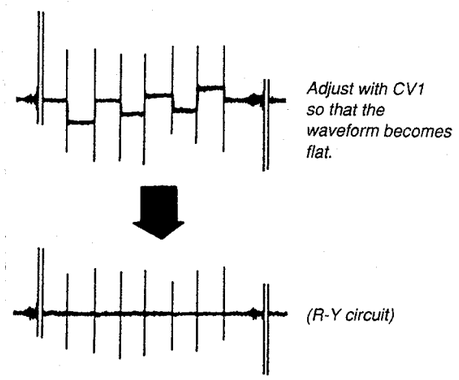
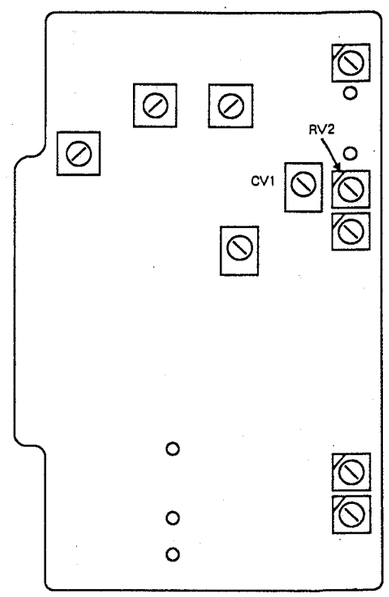
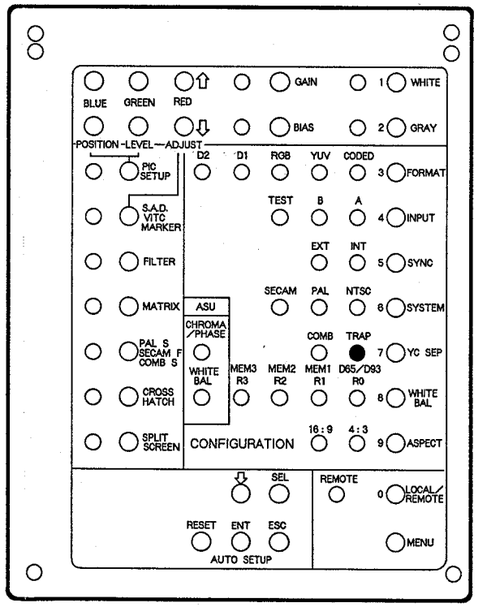


Fig. 11-3.

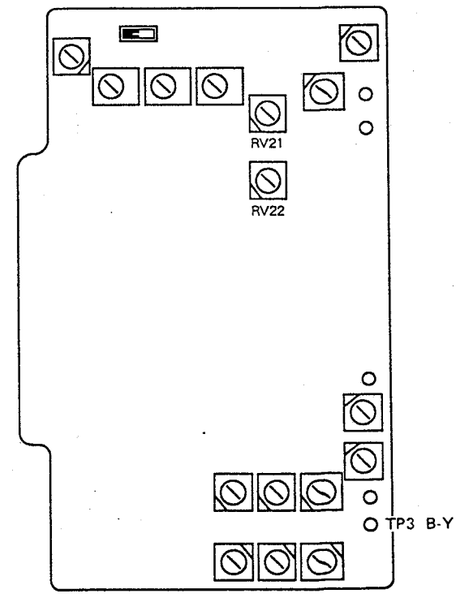
BC board



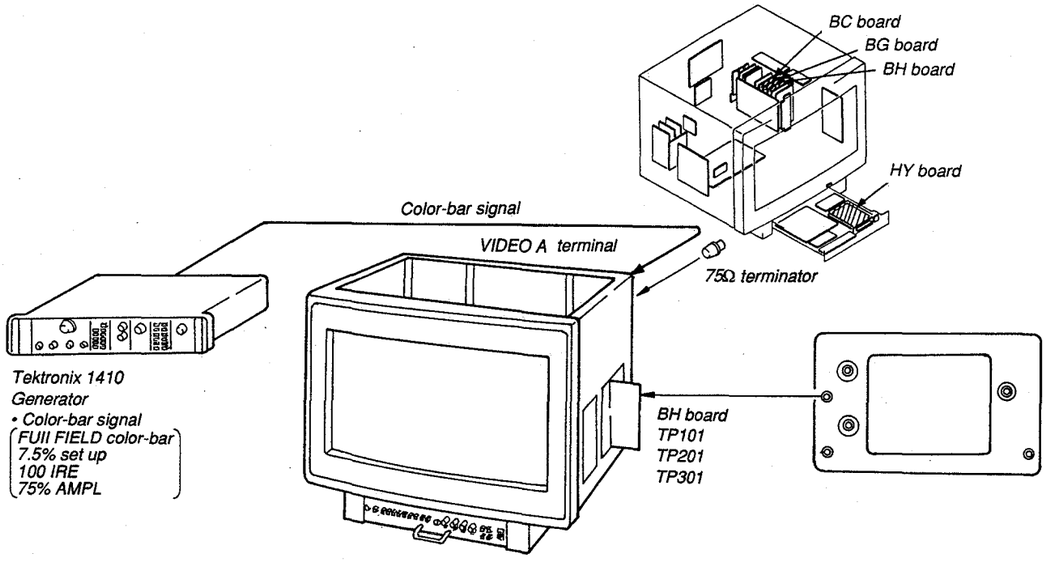
SUB CONTRAST PANEL (HY board)



BG board

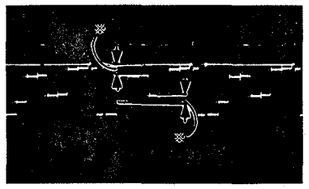


12. BC Board COLOR DIFFERENCE LEVEL ADJUSTMENT (BVM-2811 ONLY)



- YC SEP button (SUB CONTROL PANEL)····· TRAP

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP101 of BH board.
3. Adjust RV4 of BC board so that the levels with ※ is flat as shown in Fig. 12-1.

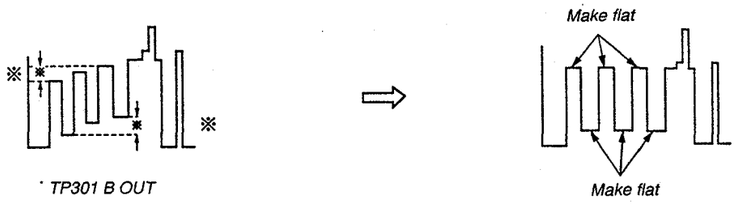


Adjust with levels with ※ to be flat respectively using RV4 of BC board.

TP101 R OUT

Fig. 12-1.

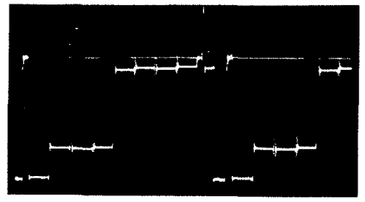
4. Connect an oscilloscope to the TP301 of BH board.
5. Adjust RV5 of BC board so that the output waveform as shown in Fig. 12-2.



TP301 B OUT

Fig. 12-2.

6. Connect an oscilloscope to the TP201 of BH board.
7. Adjust RV4 and RV5 of BG board so that the INPUT waveform becomes flat as shown in Fig. 12-3.



TP201 G OUT

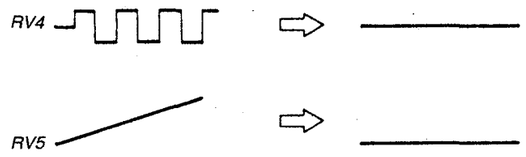
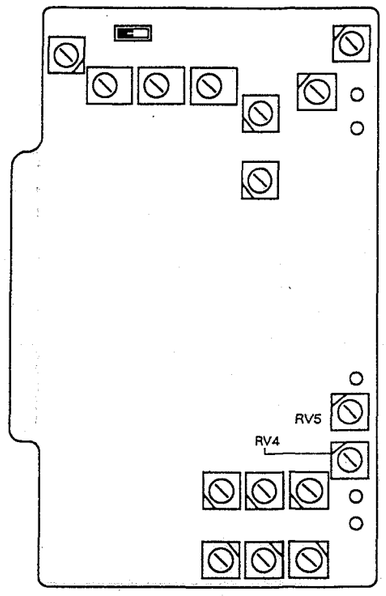


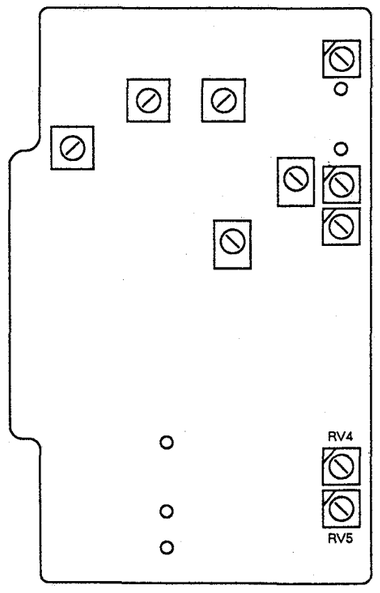
Fig. 12-3.

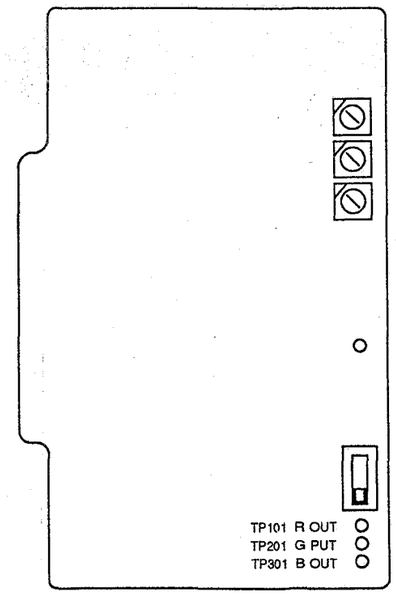
BG board



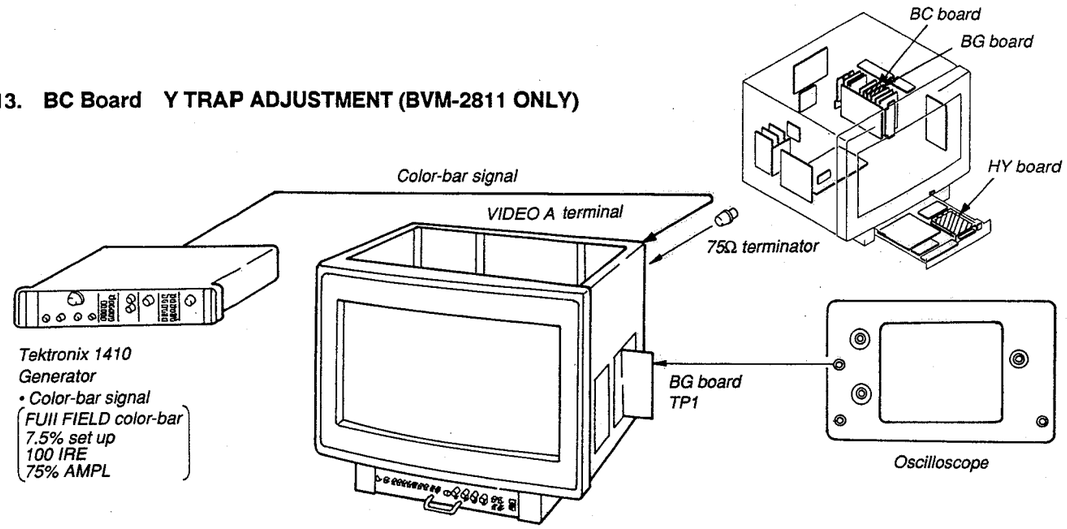
BH board

BC board





13. BC Board Y TRAP ADJUSTMENT (BVM-2811 ONLY)



- COLOR SYSTEM button (SUB CONTROL PANEL)··· NTSC
- YC SEP button (SUB CONTROL PANEL) ····· TRAP

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L1 of BC board so that 3.58 MHz subcarrier is minimum as shown in Fig. 13-1.

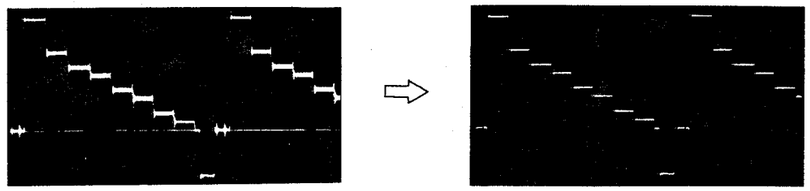
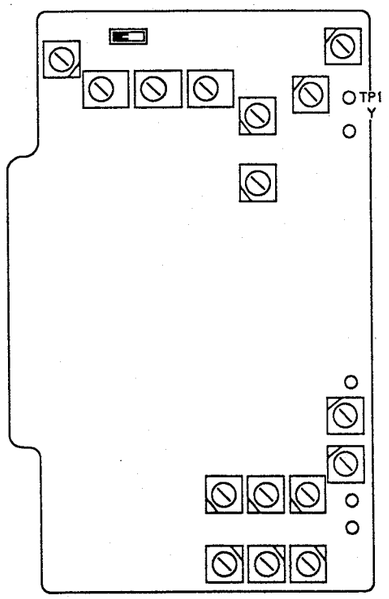
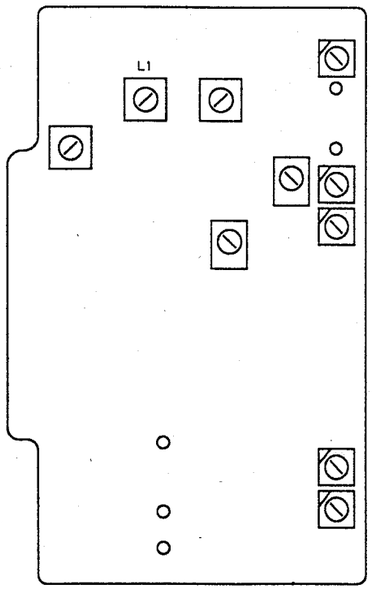


Fig. 13-1.

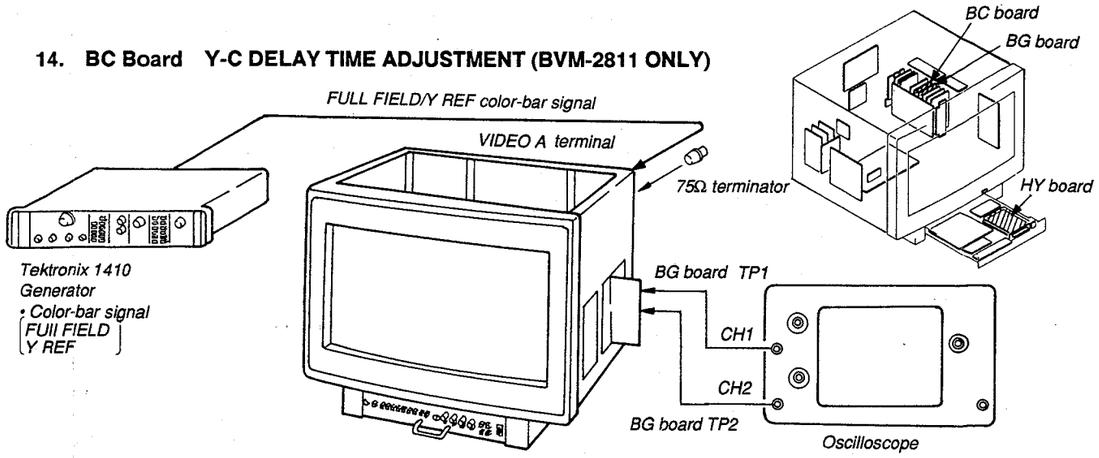
BG board



BC board



14. BC Board Y-C DELAY TIME ADJUSTMENT (BVM-2811 ONLY)



- YC SEP button (SUB CONTROL PANEL)····· TRAP

1. Input color-bar signal (FULL FIELD/Y REF) to the VIDEO A terminal of the set.
2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP2 of BG board (VERT mode of the oscilloscope is CHOP).
3. Adjust RV1 of BC board so that the output waveform as shown in Fig. 14-1.

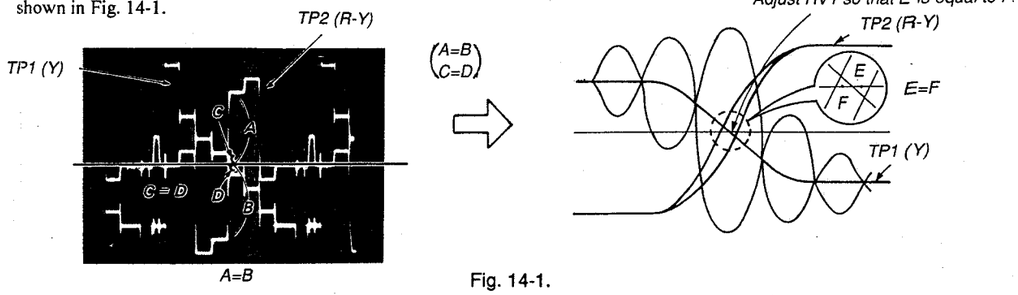
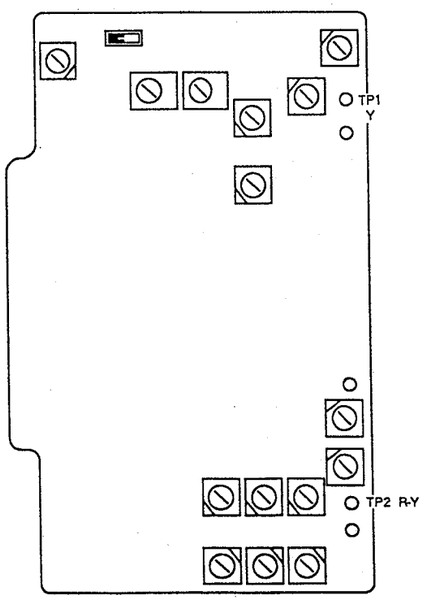
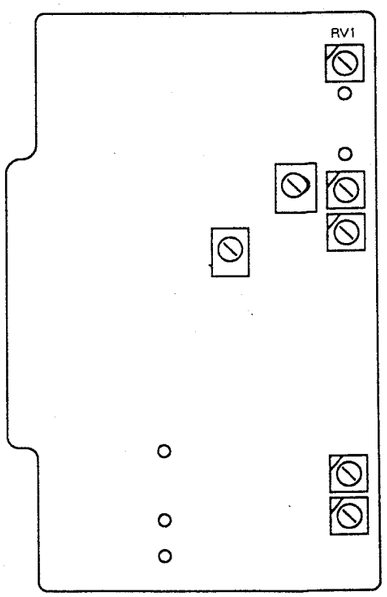


Fig. 14-1.

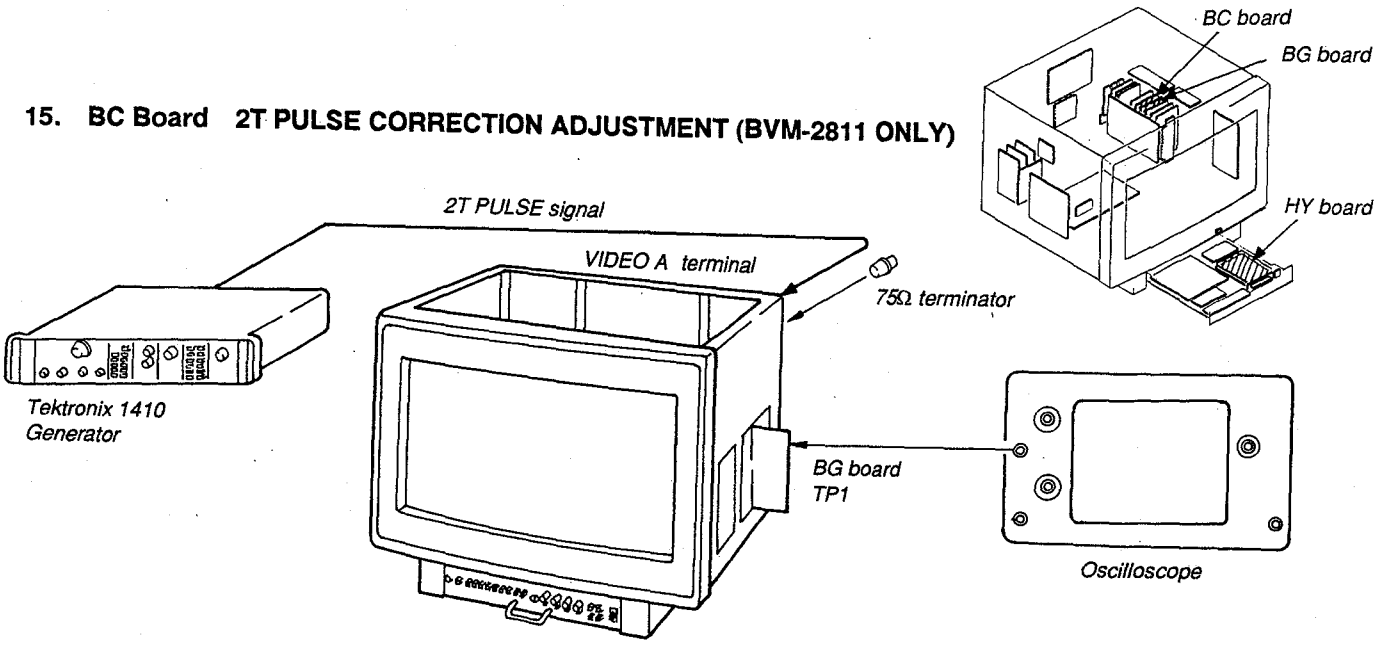
BG board



BC board



15. BC Board 2T PULSE CORRECTION ADJUSTMENT (BVM-2811 ONLY)



- YC SEP button (SUB CONTROL PANEL)..... TRAP

1. Input 2T pulse signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L2 of BC board so that A is equal to B as shown in Fig. 15-1.
4. Change the input signal from 2T pulse to T pulse, and make sure the waveform balance is not lost extremely as shown in Fig. 15-1.

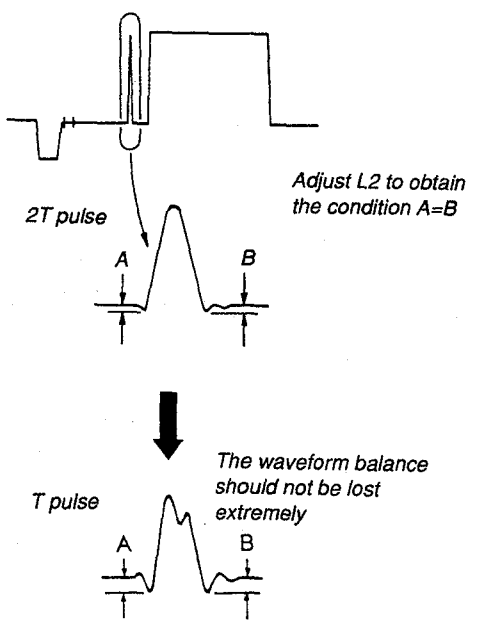
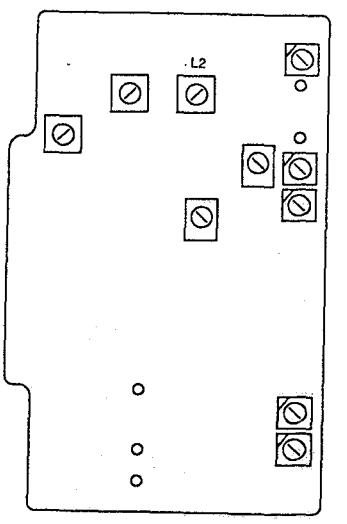
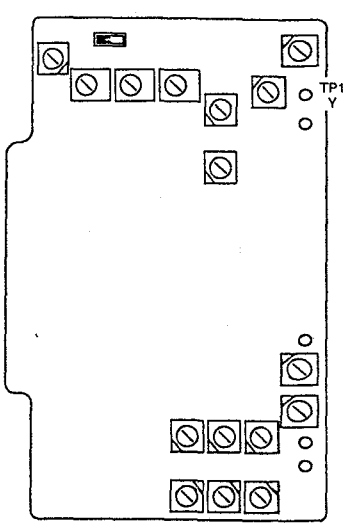


Fig. 15-1.

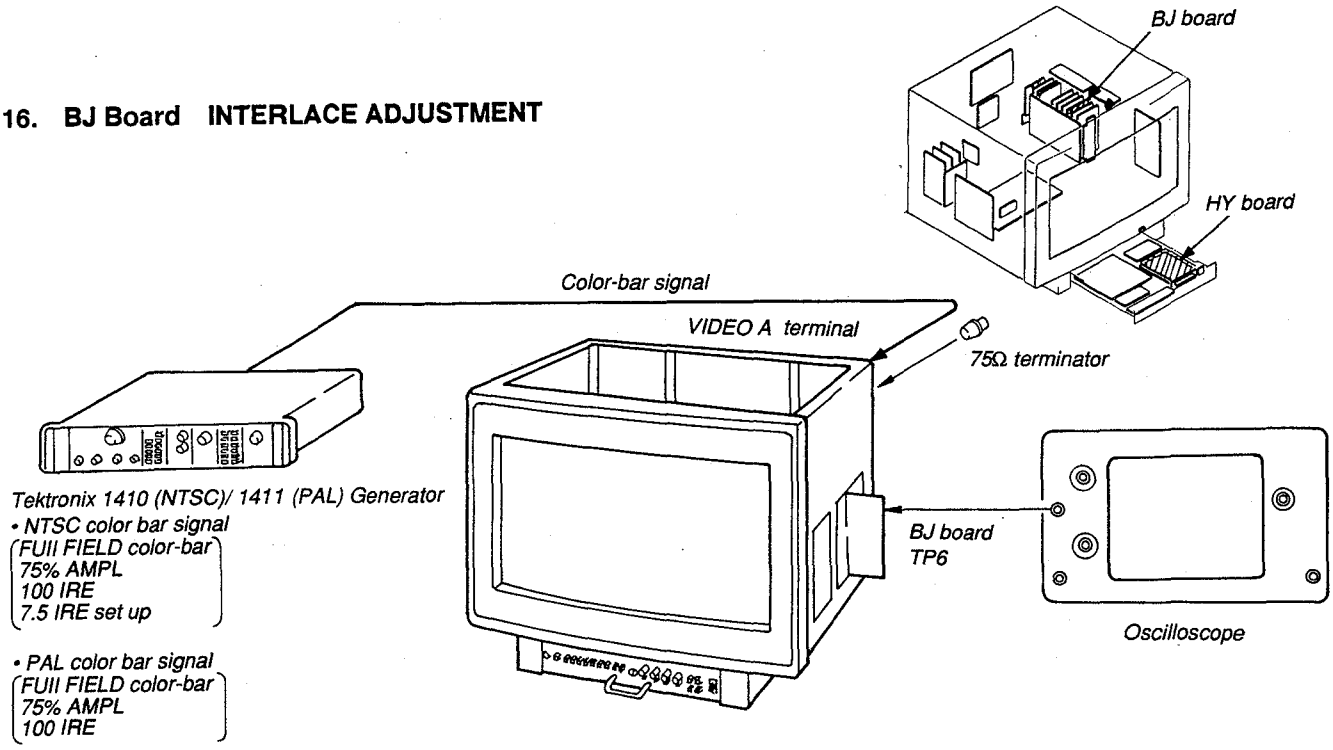
BC board



BG board

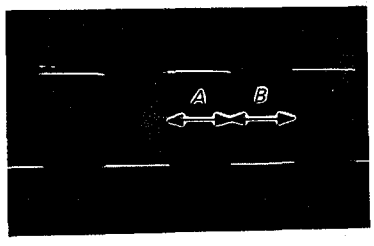


16. BJ Board INTERLACE ADJUSTMENT



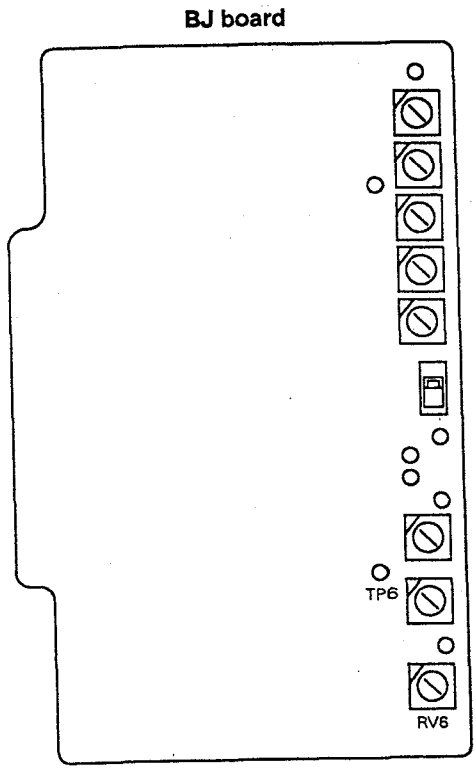
• YC SEP button (SUB CONTROL PANEL)····· TRAP

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Con· ·ct an oscilloscope to the TP6 on the BG board.
3. Adjust RV6 to obtain the waveform on the oscilloscope as shown in Fig. 16-1.

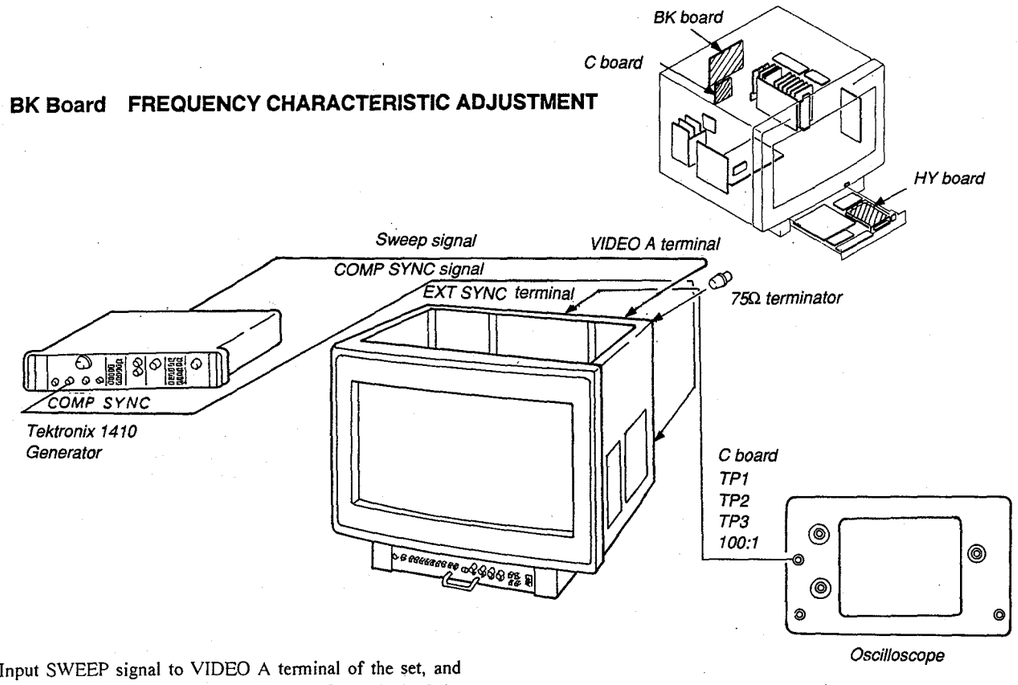


A=B

Fig. 16-1.



17. BK Board FREQUENCY CHARACTERISTIC ADJUSTMENT



1. Input SWEEP signal to VIDEO A terminal of the set, and input COMP SYNC signal to EXT SYNC terminal of the set.
   - YC SEP button (SUB CONTROL PANEL) ····· TRAP (BVM-2811)(BVM-3011P)
   - SYNC button (SUB CONTROL PANEL)····· EXT
   - MODE selector (FRONT PANEL) ·····MONO (⏤)
   - FILTER button (SUB CONTROL PANEL) ····· OFF
2. Connect an oscilloscope to the TP1 on the C board.
   * Probe: 100:1
3. Adjust CV101 and CV102 on the BK board so that output waveform becomes flat in a range of 0 to 10 MHz as shown in Fig. 17-1.
4. Connect an oscilloscope to the TP2 on the C board.
5. Adjust CV201 and CV202 on the BK board so that output waveform becomes flat in a range of 0 to 10 MHz as shown in Fig. 17-1.
6. Connect an oscilloscope to the TP3 on the C board.
7. Adjust CV301 and CV302 on the BK board so that output waveform becomes flat in a range of 0 to 10 MHz as shown in Fig. 17-1.

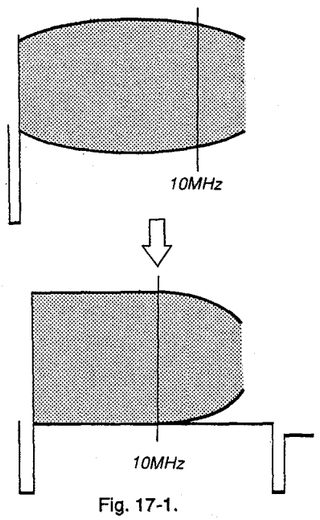
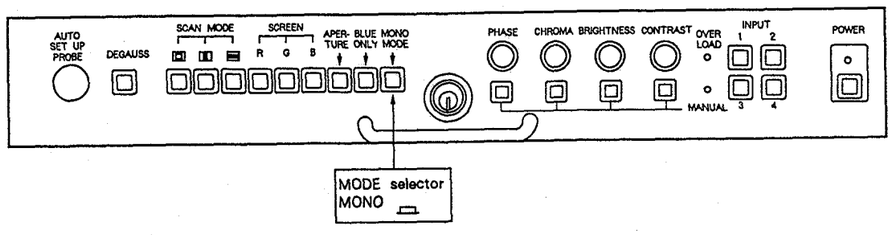
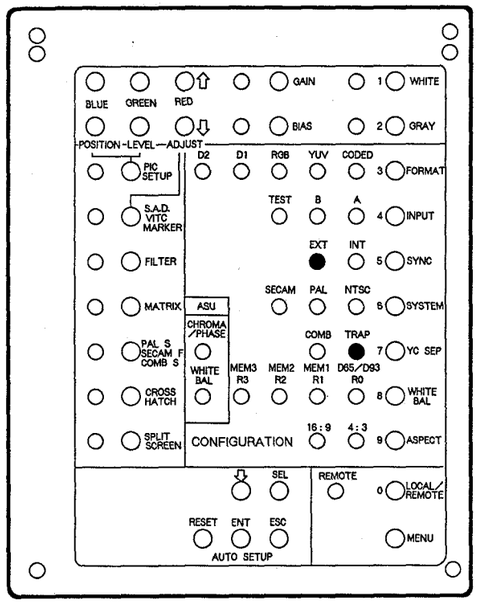


Fig. 17-1.

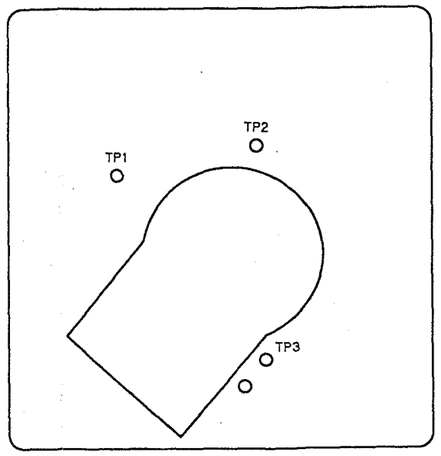
FRONT PANEL



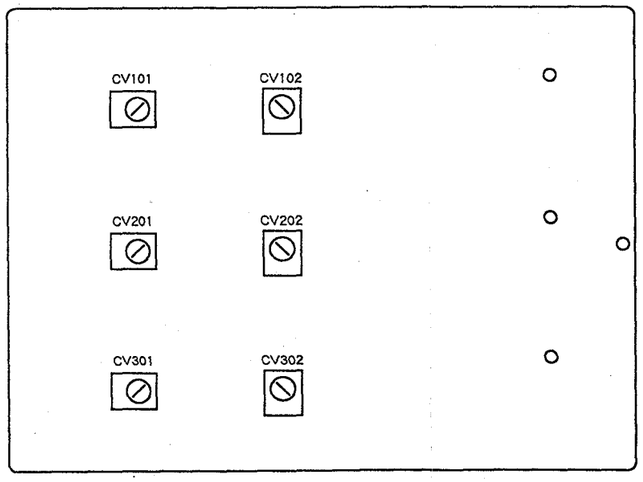
SUB CONTRAST PANEL (HY board)



C board

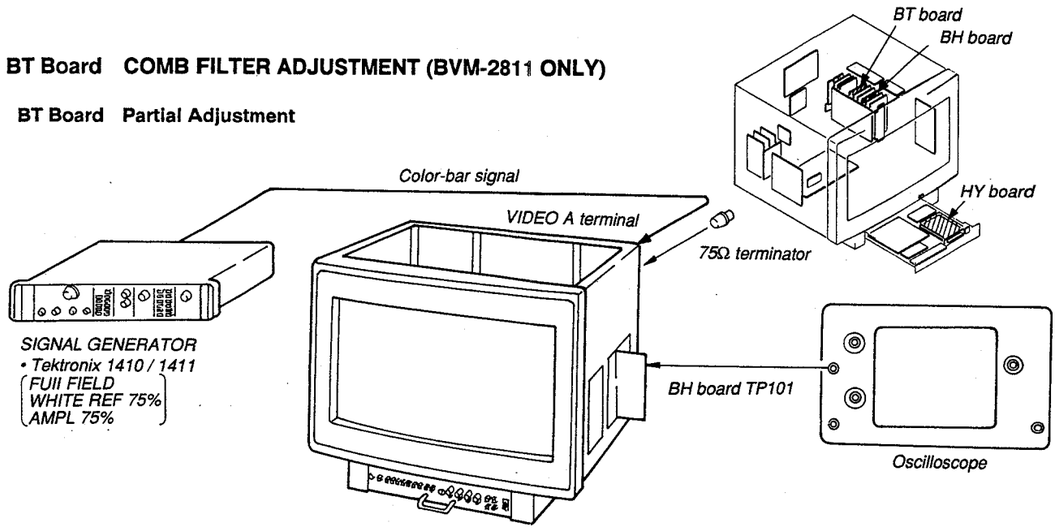


BK board



18. BT Board COMB FILTER ADJUSTMENT (BVM-2811 ONLY)

18-1. BT Board Partial Adjustment



Luminance Level Adjustment

1. Feed a color bar signal to VIDEO A INPUT terminal of this set.
2. Set the YC SEP button on the sub control panel to TRAP position.
3. Connect the oscilloscope to TP101 (R OUT) on the BH board. (DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope to set the portion A (white) of Fig. 18-1 to the center of the oscilloscope.
5. Set the YC SEP button on the sub control panel to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion A (white) of Fig. 18-1 to the center of the oscilloscope using RV3 (luminance level) on the BT board.

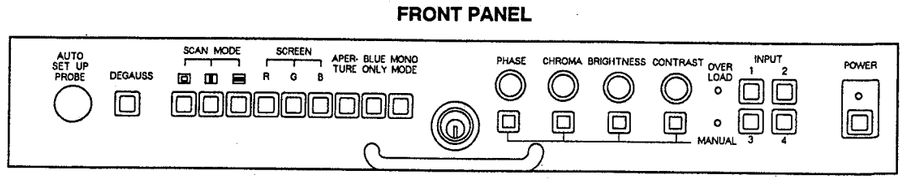
Chroma Level Adjustment

1. Feed a color bar signal to VIDEO A INPUT terminal of this set.
2. Set the YC SEP button on the sub control panel to the TRAP position.
3. Connect the oscilloscope to TP101 on the BH board. (DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope to set the portion A (white) of Fig. 18-1 to the center of the oscilloscope.
5. Set the YC SEP button to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion B (red) of Fig. 18-1 to the center of the oscilloscope using RV8 (chroma level) on the BT board.

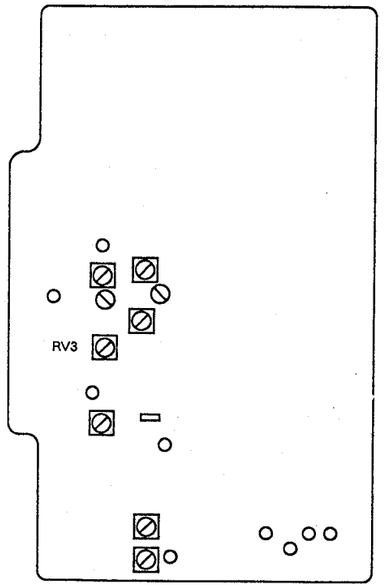
Fig. 18-1.

Note: Never attempt to turn the following parts as these cannot be easily adjusted.
FL1, FL2, FL3, DL3, DL5, DL6, DL8

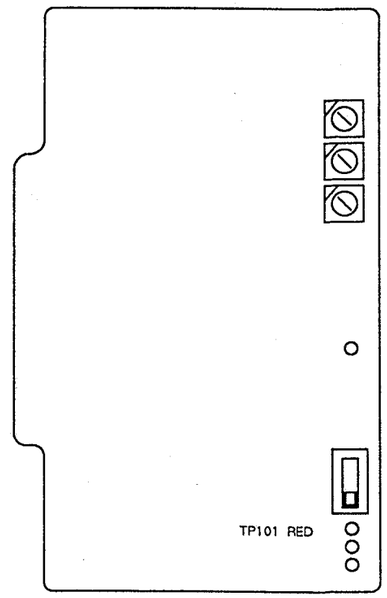
FRONT PANEL



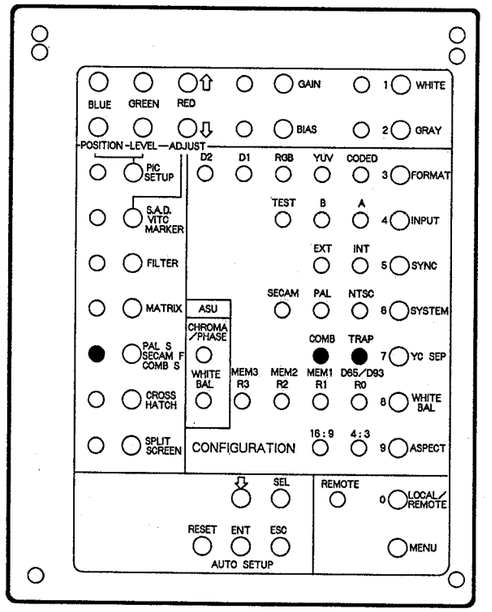
BT board



BH board

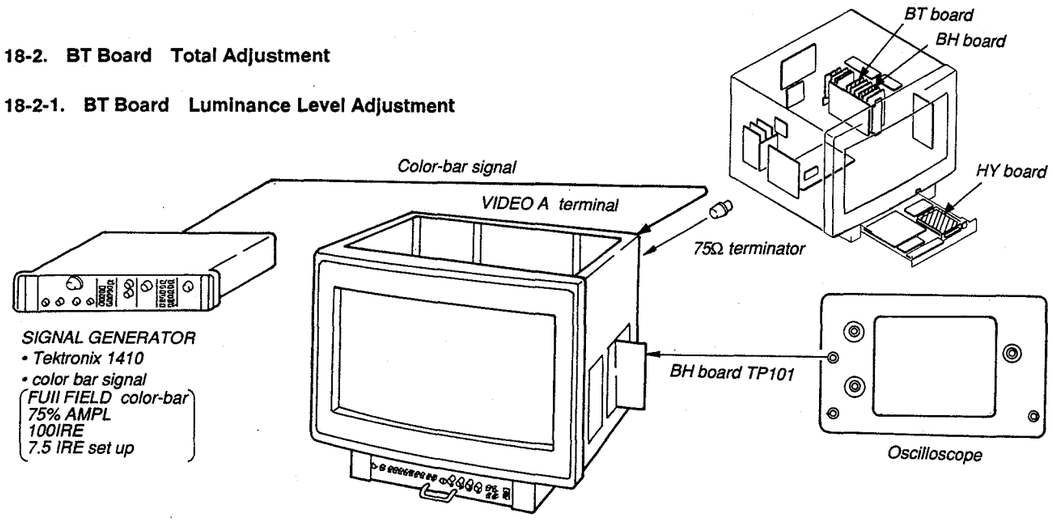


SUB CONTROL PANEL (HY board)



18-2. BT Board Total Adjustment

18-2-1. BT Board Luminance Level Adjustment



1. Feed a color bar signal to VIDEO A INPUT terminal of this set.
2. Set the YC SEP button on the sub control panel to the TRAP position.
3. Connect the oscilloscope to TP101 (R OUT) on the BH board. (DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope until the portion A (white) of Fig. 18-2 is set to the center of the oscilloscope.
5. Set the YC SEP button to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion A (white) of Fig. 18-2 to the center of the oscilloscope using RV3 (luminance level) on the BT board.
8. Set the PAL S/SECAM F/COMB S button to the OFF.
9. Set the portion A (white) of Fig. 18-2 to the center of the oscilloscope using RV9 (1H luminance level) on the BT board.

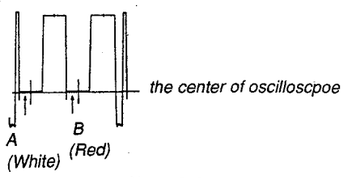
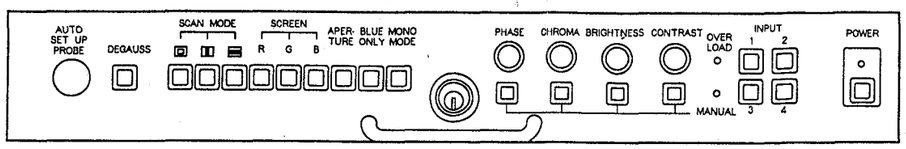
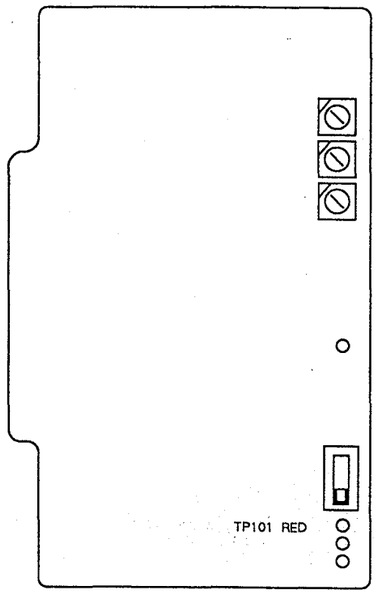


Fig. 18-2.

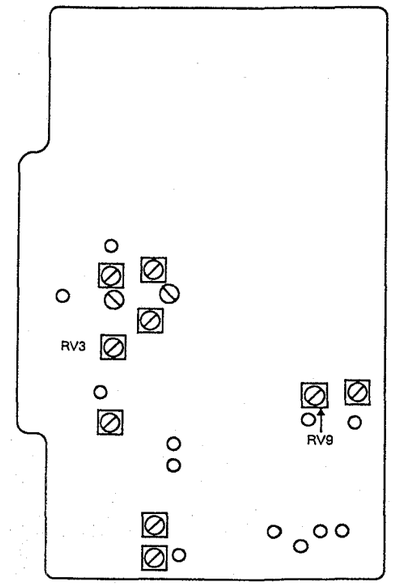
FRONT PANEL



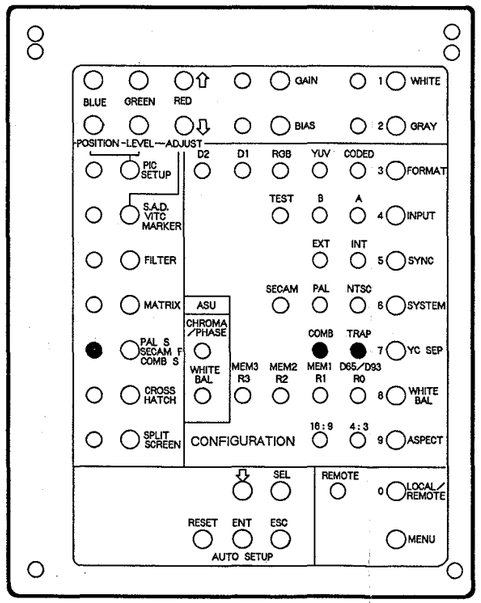
BH board



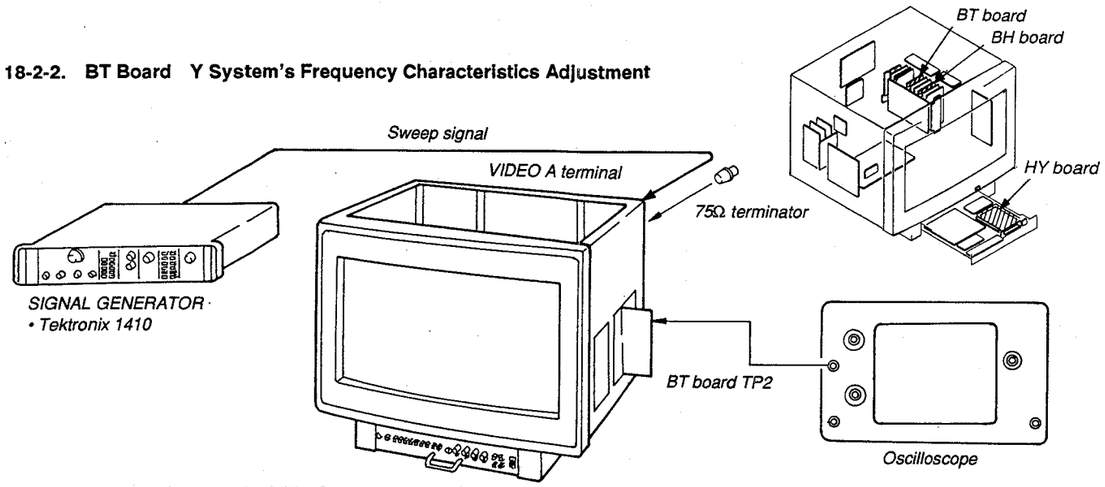
BT board



SUB CONTROL PANEL (HY board)



18-2-2. BT Board Y System's Frequency Characteristics Adjustment



1. Feed a sweep signal to the VIDEO A INPUT terminal of this set.
2. Set the YC SEP button on the sub control panel to the COMB position.
3. Connect the oscilloscope to TP2 on the BT board. (AC 0.1 V/div:V)
4. Set CV5 to the position as shown in Fig. 18-3.
5. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
6. Adjust the frequency characteristics until it is made flat using CV1 (Y FREQ) on the BT board. If it cannot be properly adjusted by using CV1, use CV5 (Y FREQ).
7. Set the PAL S/SECAM F/COMB S button to the OFF.
8. Adjust the frequency characteristics until it is made flat using CV2 (1H Y FREQ) on the BT board.
9. Set CV3 (CLK PHASE) and CV4 (CLK PHASE) on the BT board to the position as shown in Fig. 18-4.
10. Adjust the clock phase until it becomes just as shown in Fig. 18-5 using CV3.
11. If it cannot be adjusted with CV3, adjust with CV4 by returning CV3 to the position of Fig. 18-4.

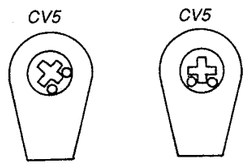


Fig. 18-3.

Fig. 18-4.

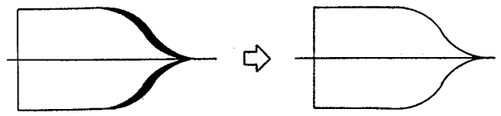
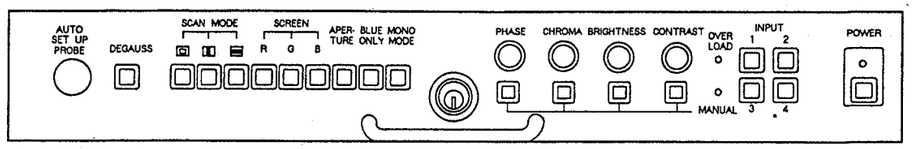
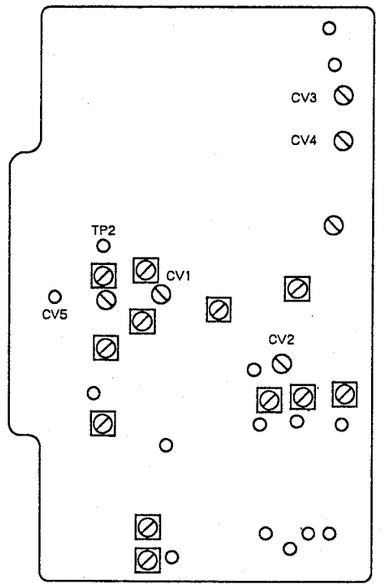


Fig. 18-5.

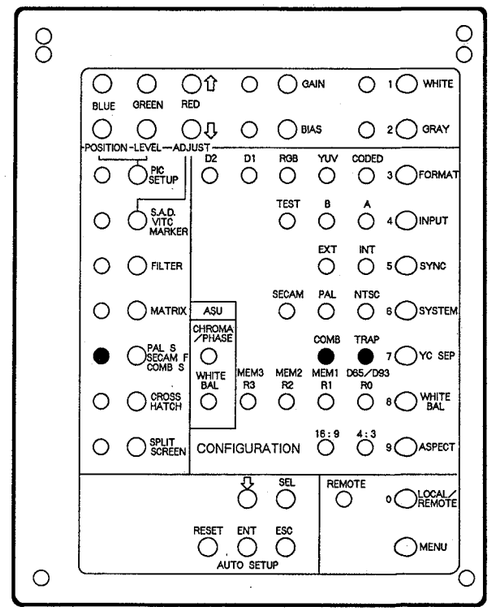
FRONT PANEL



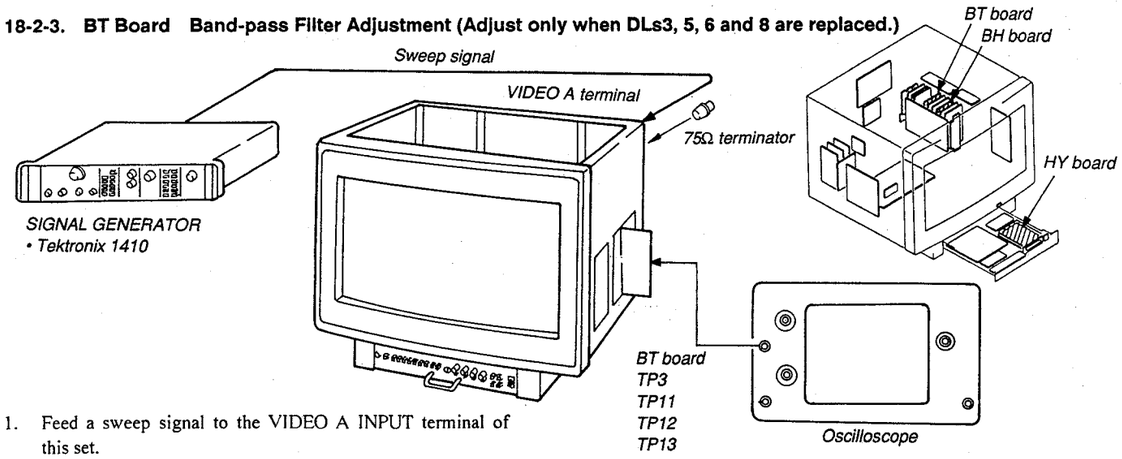
BT board



SUB CONTROL PANEL (HY board)



18-2-3. BT Board Band-pass Filter Adjustment (Adjust only when DLs3, 5, 6 and 8 are replaced.)



1. Feed a sweep signal to the VIDEO A INPUT terminal of this set.
2. Set the PAL S/SECAM F/COMB S button on the front panel to the ON.
3. Connect the oscilloscope to TP11.
4. Adjust the frequency characteristics using DL3 on the BT board so that the waveform becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.
5. Connect the oscilloscope to TP12.
6. Adjust the frequency characteristics using DL6 on the BT board so that the waveform becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.
7. Connect the oscilloscope to TP13.
8. Adjust the frequency characteristics using DL8 on the BT board so that the waveforms becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.
9. Connect the oscilloscope to TP3.
10. Adjust the frequency characteristics using DL5 on the BT board so that the waveforms becomes symmetrical as shown in Fig. 18-5 with 3.58 MHz as center frequency.

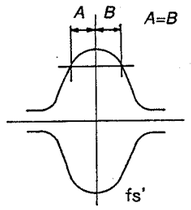
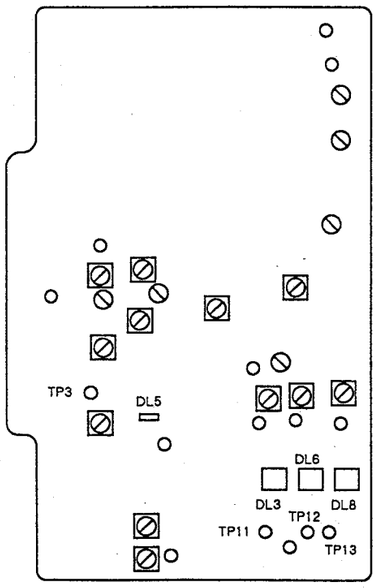
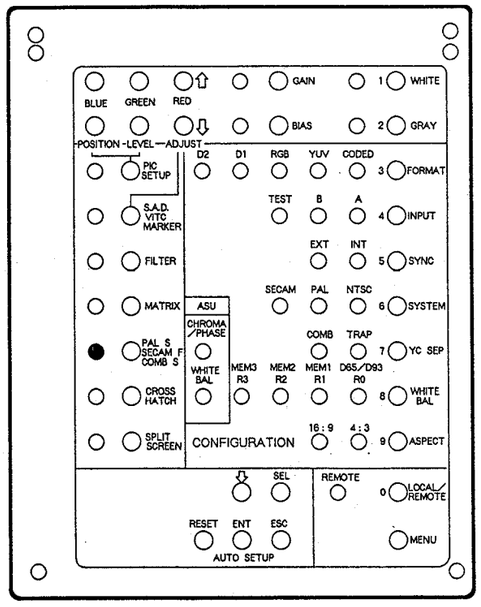


Fig. 18-6.

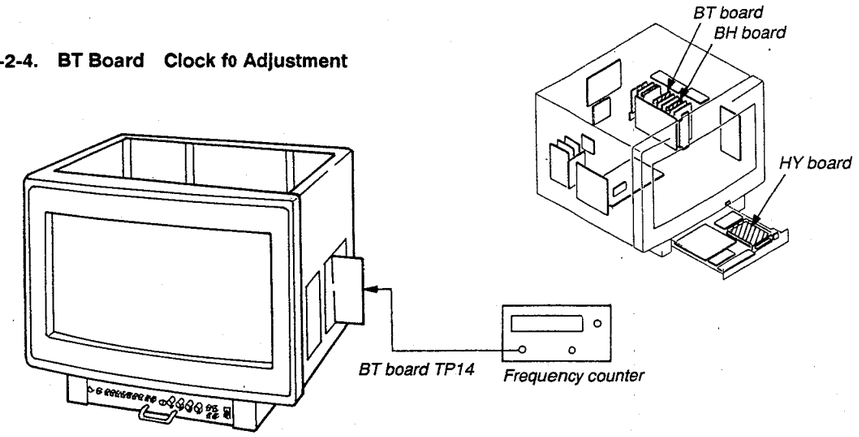
BT board



SUB CONTROL PANEL (HY board)



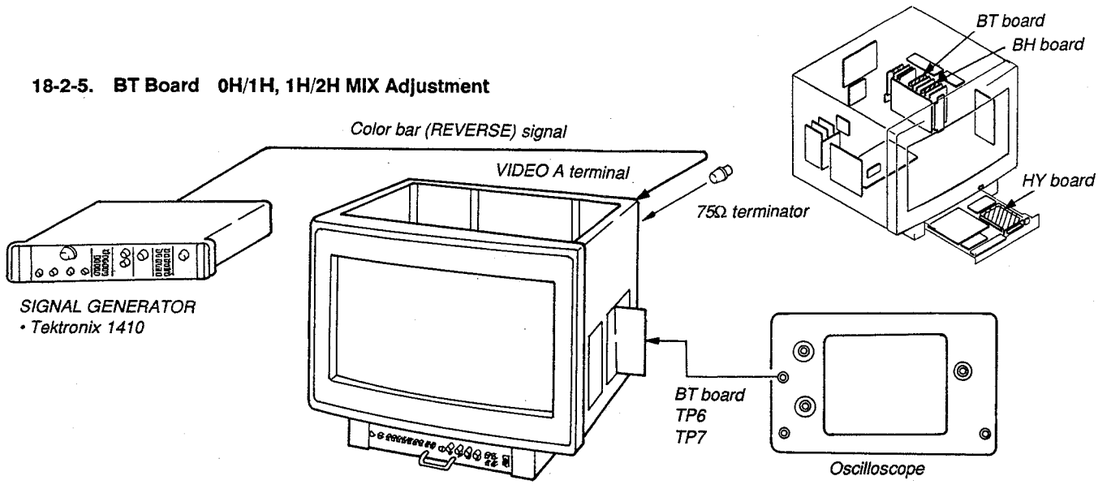
18-2-4. BT Board Clock f0 Adjustment



1. Connect the frequency counter to TP14.
2. Make adjustment as shown below using CV6 (CLK FREQ) on the BT board.
   • fo=21.477 MHz

BT board

18-2-5. BT Board 0H/1H, 1H/2H MIX Adjustment



1. Feed a color bar signal (REVERSE) to the VIDEO A INPUT terminal of this set.
2. Connect the oscilloscope to TP6 to magnify the signal inverted area.
3. Turn RV5 (0H/1H MIX LEVEL) and RV10 (0H/1H MIX PHASE) on the BT board until the portion shown in Fig. 18-7 is reduced to a minimum.
4. Connect the oscilloscope to TP7.
5. Turn RV102 (1H/2H MIX PHASE) and RV11 (1H/2H MIX LEVEL) on the BT board until the portion shown in Fig. 18-7 is reduced to a minimum.

Enlarged view of inverted signal section

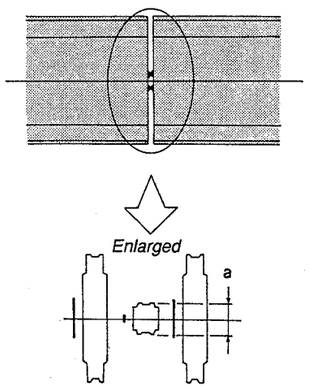
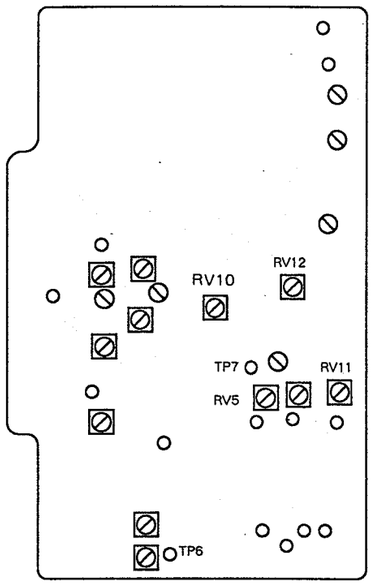
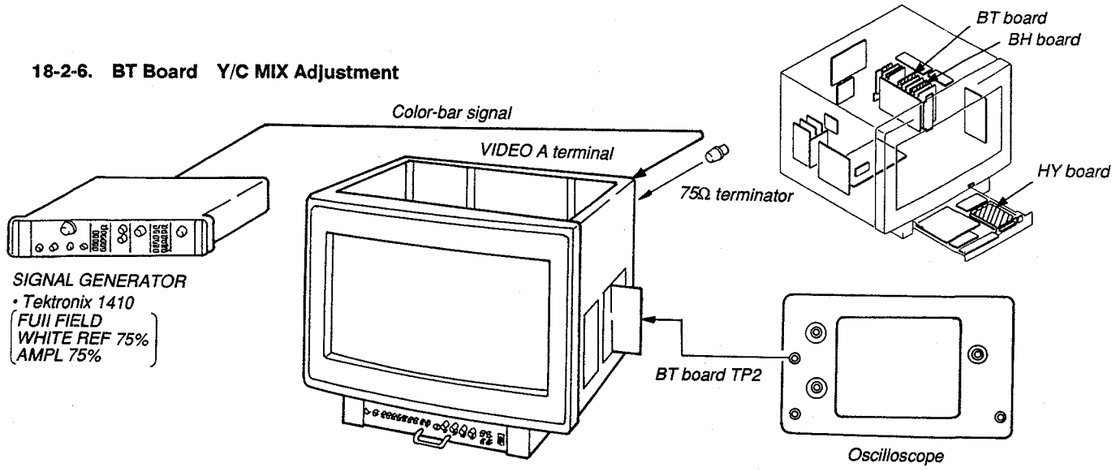


Fig. 18-7.

BT board



18-2-6. BT Board Y/C MIX Adjustment



1. Feed a color bar signal to the VIDEO A INPUT terminal of this set.
2. Connect the oscilloscope to TP2 on the BT board.
3. Set the PAL S/SECAM F/COMB S button on the sub control panel to the OFF.
4. Turn RV1 (Y/C MIX PHASE) and RV2 (Y/C MIX LEVEL) on the BT board so that the sub-carrier level is reduced to a minimum as shown in Fig. 18-8.

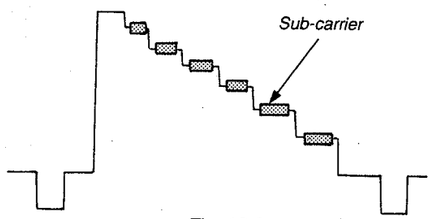
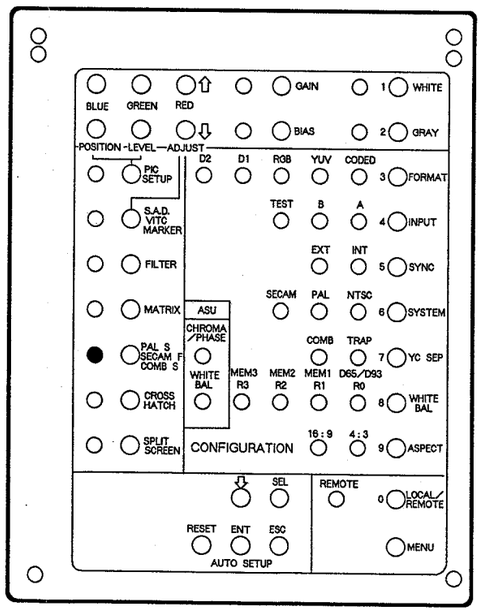


Fig. 18-8.

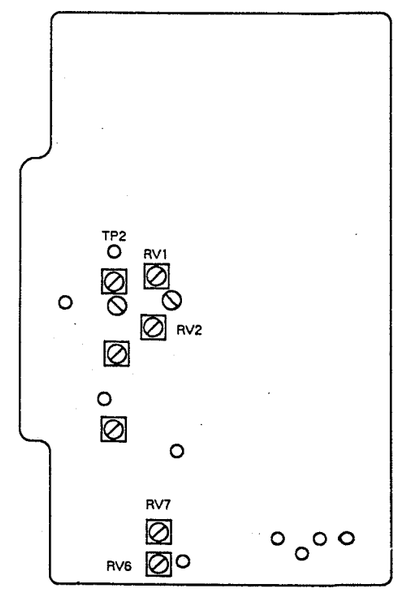
SUB CONTROL PANEL (HY board)



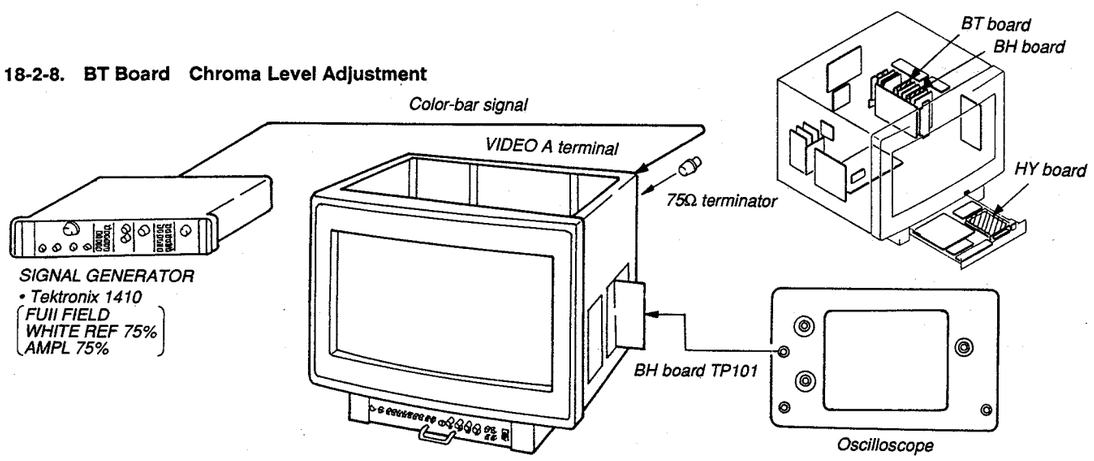
18-2-7. BT Board S COMB Adjustment

1. Feed a color bar signal to the VIDEO A INPUT terminal of this set.
2. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
3. Connect the oscilloscope to TP2 on the BT board.
4. Turn RV6 (S COMB C Level) and RV7 (S COMB C PHASE) on the BT board so that the sub-carrier level is reduced to a minimum as shown in Fig. 18-8.

BT board



18-2-8. BT Board Chroma Level Adjustment



1. Feed a color bar signal to the VIDEO A INPUT terminal of this set.
2. Set the YC SEP button on the sub control panel to the TRAP position.
3. Connect the oscilloscope to TP101 on the BH board. (DC 0.1 V/div:H)
4. Turn the POSITION control of the oscilloscope to set the portion B (red) of Fig. 18-9 to the center of the oscilloscope.
5. Set the YC SEP button to the COMB position.
6. Set the PAL S/SECAM F/COMB S button on the sub control panel to the ON.
7. Set the portion B (red) of Fig. 18-9 to the center of the oscilloscope using RV8 (C OUTPUT LEVEL) on the BT board.

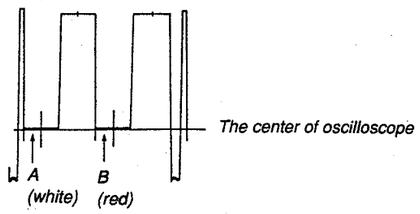
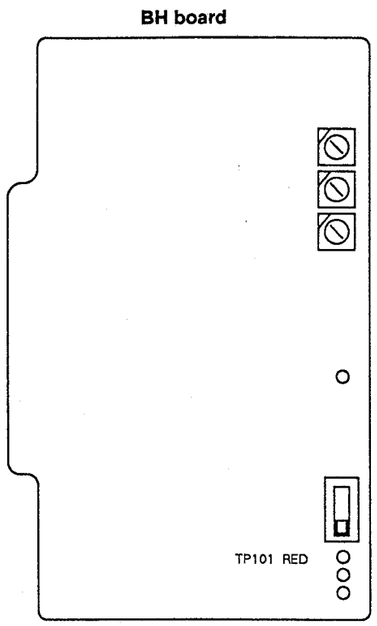
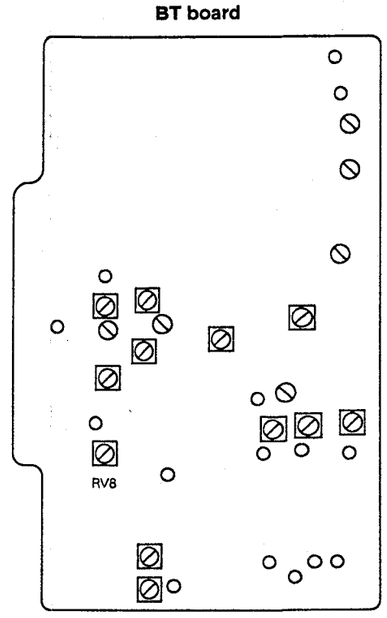
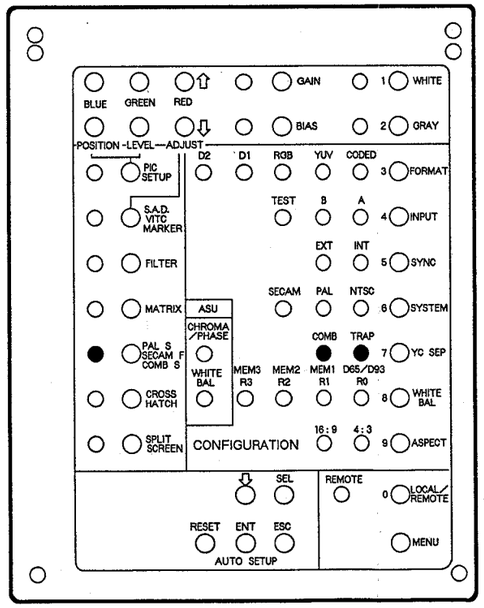


Fig. 18-9.

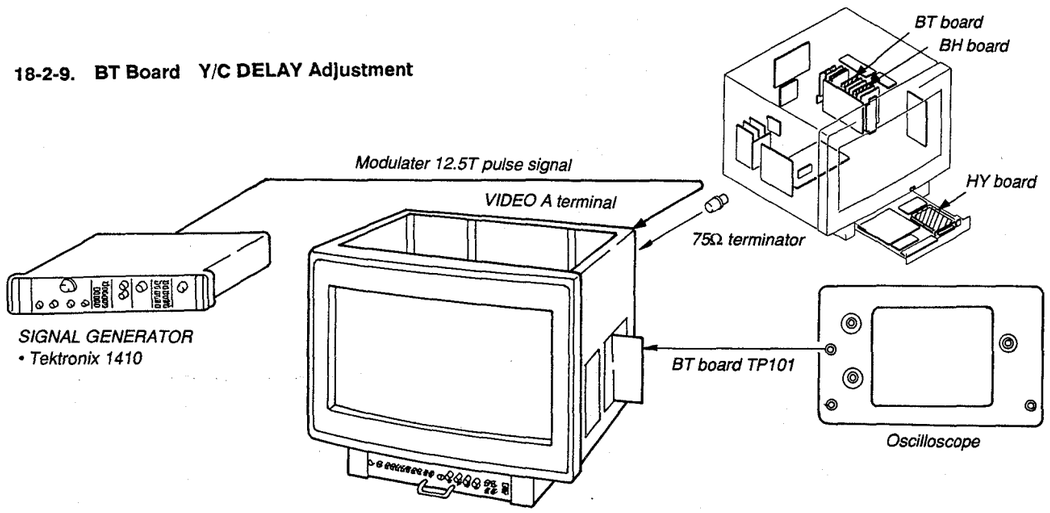




SUB CONTROL PANEL (HY board)



18-2-9. BT Board Y/C DELAY Adjustment



1. Feed a 12.5T pulse signal to the VIDEO A terminal of this set.
2. Set the PAL S/SECAM F/COMB S button to the ON.
3. Connect the oscilloscope to TP101 on the BH board.
4. Turn the CHROMA MANUAL control (on the front panel) until the chroma signal is adjusted as shown in Fig. 18-10.
5. After adjustment, turn RV4 (Y/C DELAY) on the BT board until the waveform is symmetrical.

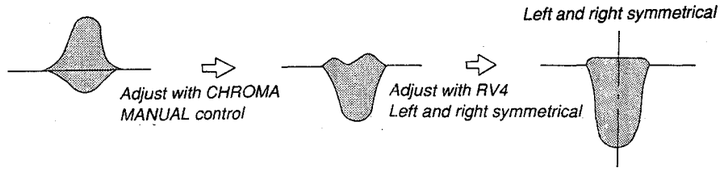
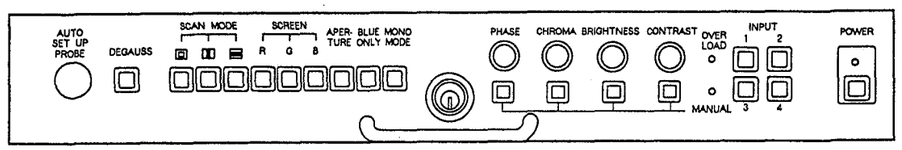
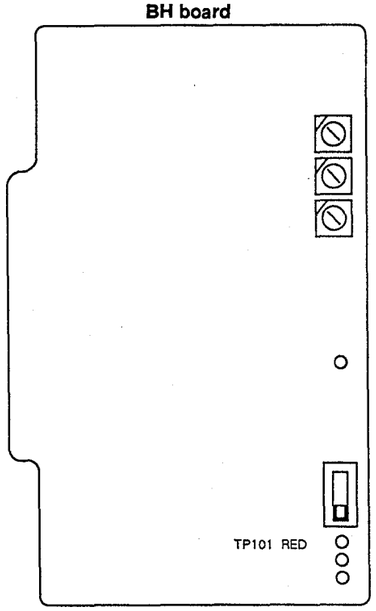


Fig. 18-10.

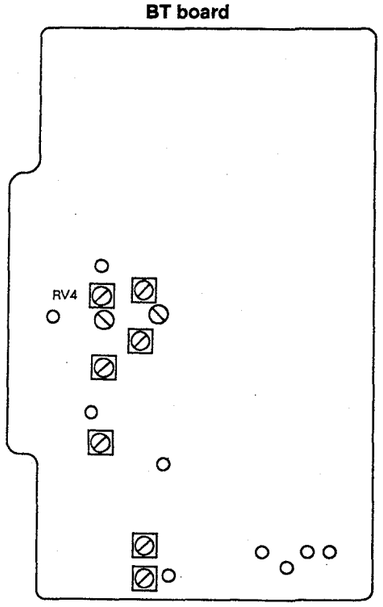
FRONT PANEL



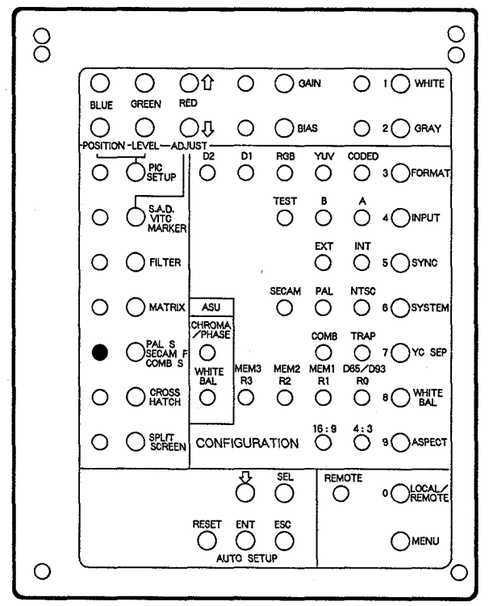
BH board



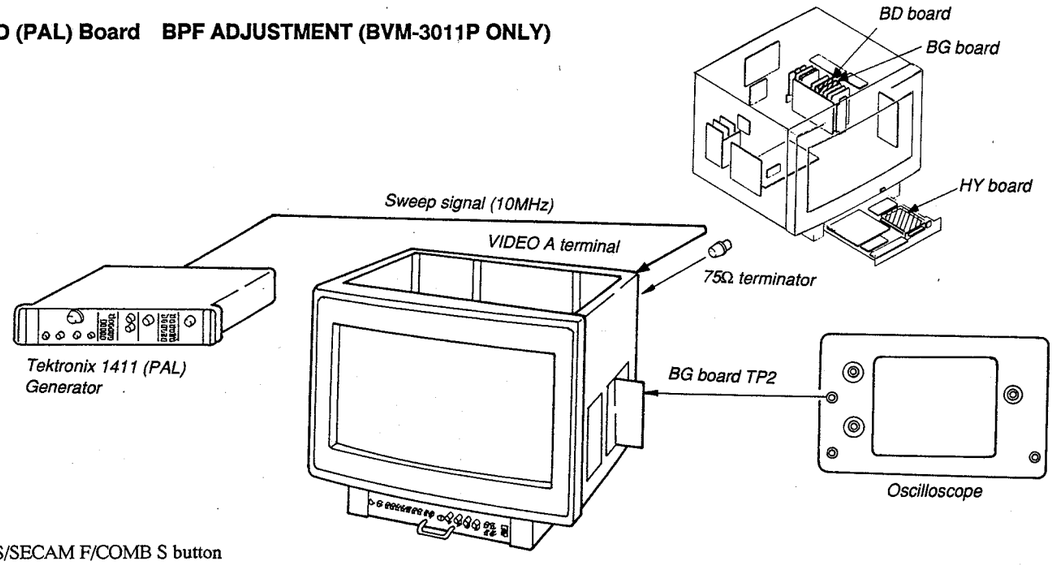
BT board



SUB CONTROL PANEL (HY board)



19. BD (PAL) Board BPF ADJUSTMENT (BVM-3011P ONLY)



- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL)·····ON

1. Input SWEEP signal (10 MHz) to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 on the BG board.
3. Make the V/div of oscilloscope into VARIABLE, and match the upper section of waveform to 7div as shown in Fig. 19-1.

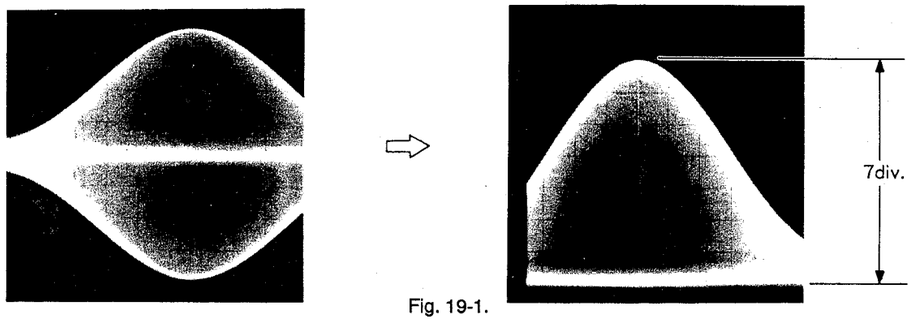


Fig. 19-1.

4. Adjust L3 on the BD board so that A is equal to B as shown in Fig. 8-2.

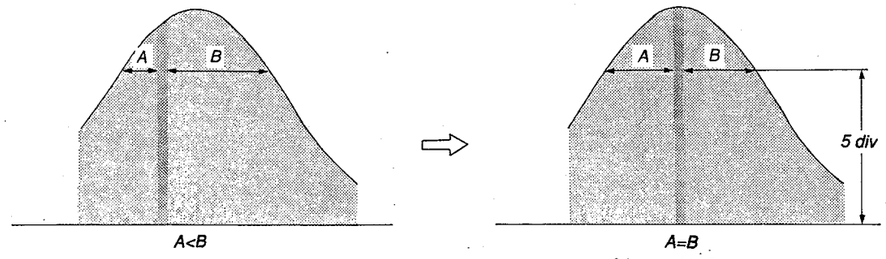
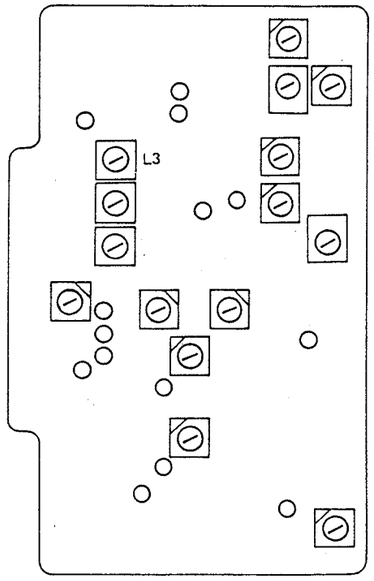
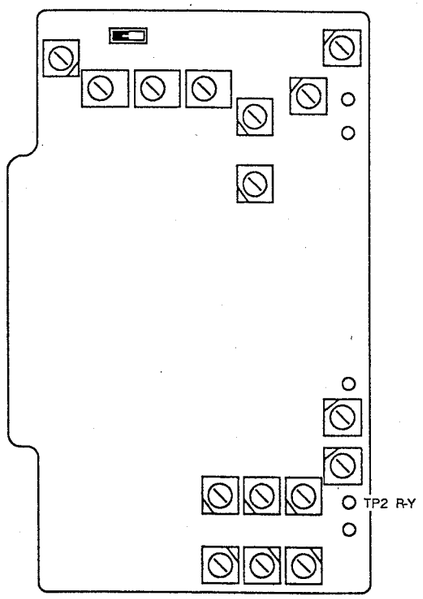


Fig. 19-2.

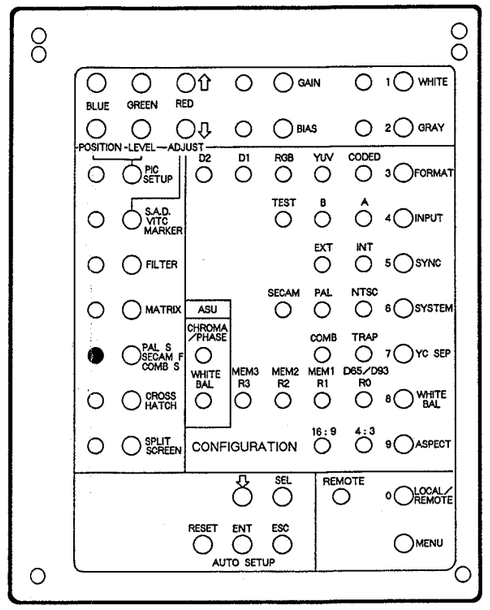
BD board



BG board



SUB CONTRAST PANEL (HY board)



20. BD (PAL) Board PHASE SHIFT ADJUSTMENT (BVM-3011P ONLY)

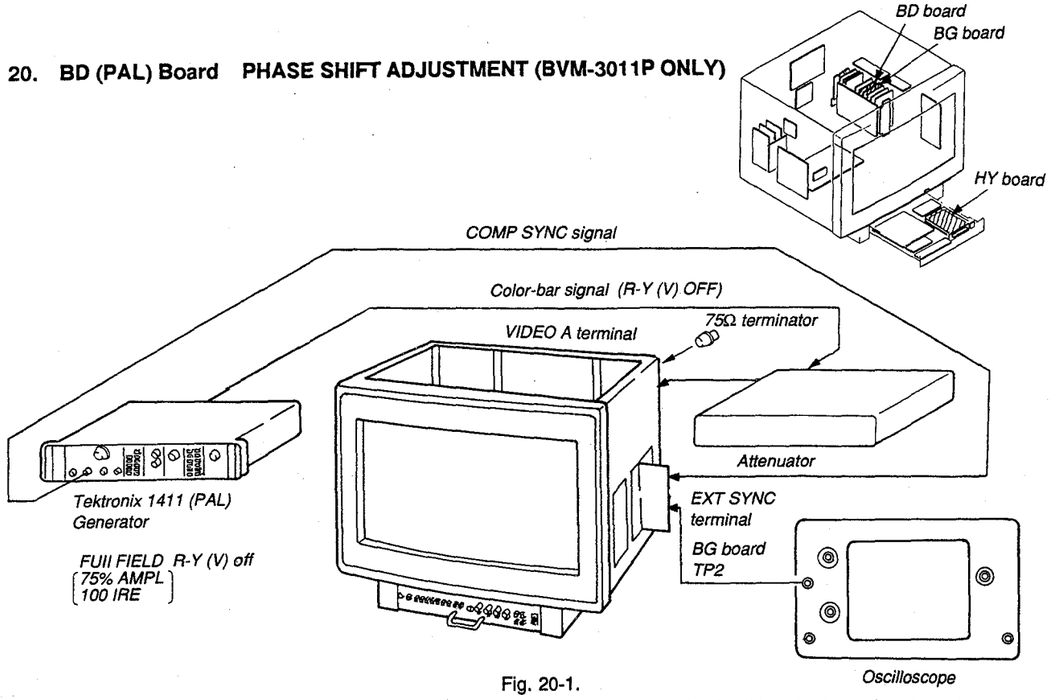


Fig. 20-1.

- SYNC button (SUB CONTROL PANEL)····· EXT
- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL)·····ON
- RV2 (BD BOARD)····· MECHANICAL CENTER
- CV1 (BD BOARD)····· MECHANICAL CENTER
- CV2 (BD BOARD)····· MECHANICAL CENTER

1. Complete the connection as shown in Fig. 20-1.
2. Connect an oscilloscope to the TP2 on the BG board.
3. Make the waveform flat with the PHASE control of front panel (R) as shown in Fig. 20-2.
4. Attenuate the signal by 10 dB by using attenuator.
5. Adjust RV2 on the BD board so that the output waveform becomes flat as shown in Fig. 20-2.
6. Restore the attenuator to 0 dB.
7. Repeat the steps 3 to 5.

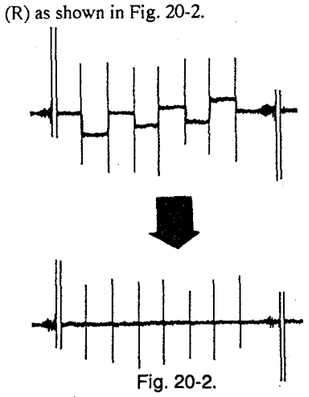
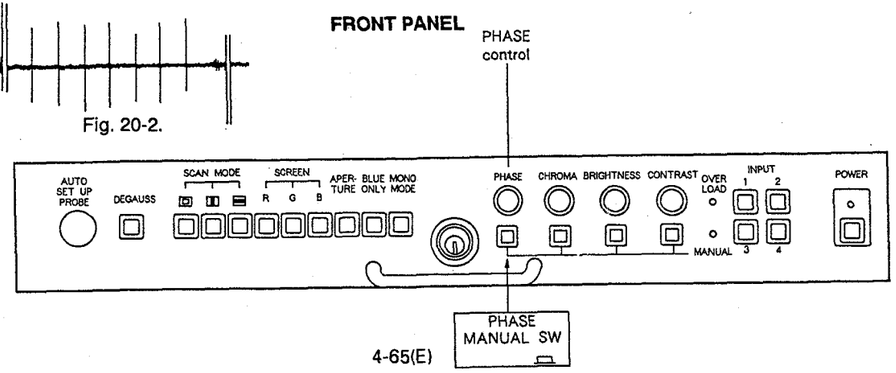
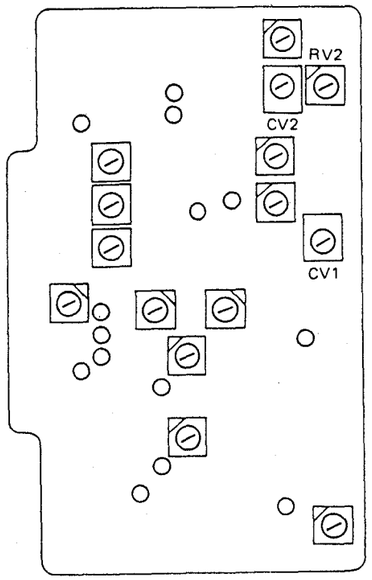


Fig. 20-2.

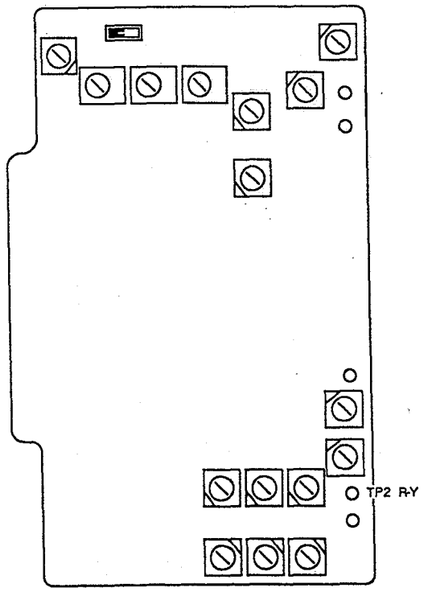
FRONT PANEL



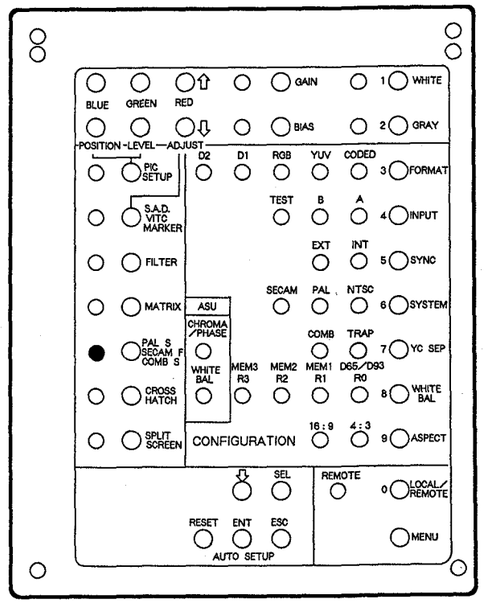
BD board



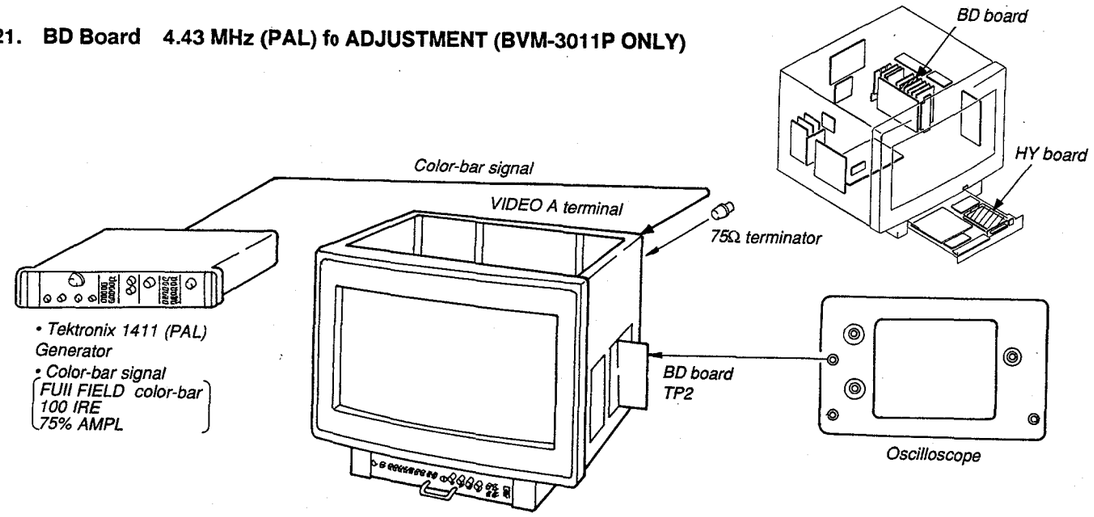
BG board



SUB CONTRAST PANEL (HY board)



21. BD Board 4.43 MHz (PAL) fo ADJUSTMENT (BVM-3011P ONLY)



1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 of BC board.
3. Short-circuit between TP11, 12 of BD board with a jumper wire.
4. Adjust CV2 of BD board so that the output waveform is shifted slowly as shown in Fig. 21-1.
5. Turn off the power of this monitor, and disconnect TP11, 12 of BD board.

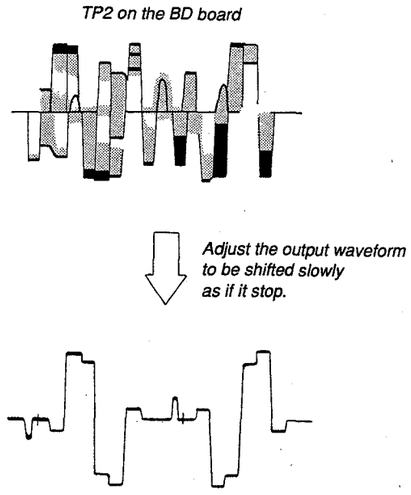
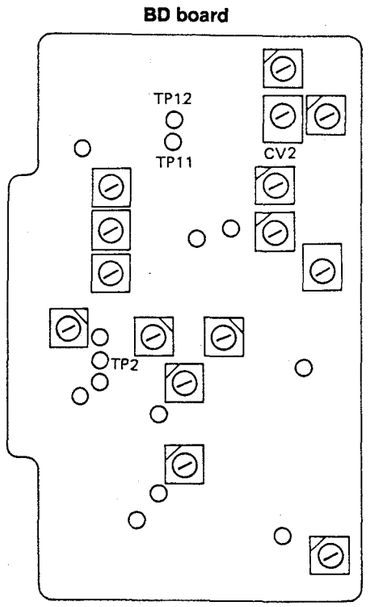


Fig. 21-1.



22. BD Board (PAL) COLOR DIFFERENCE PHASE ADJUSTMENT (BVM-3011P ONLY)

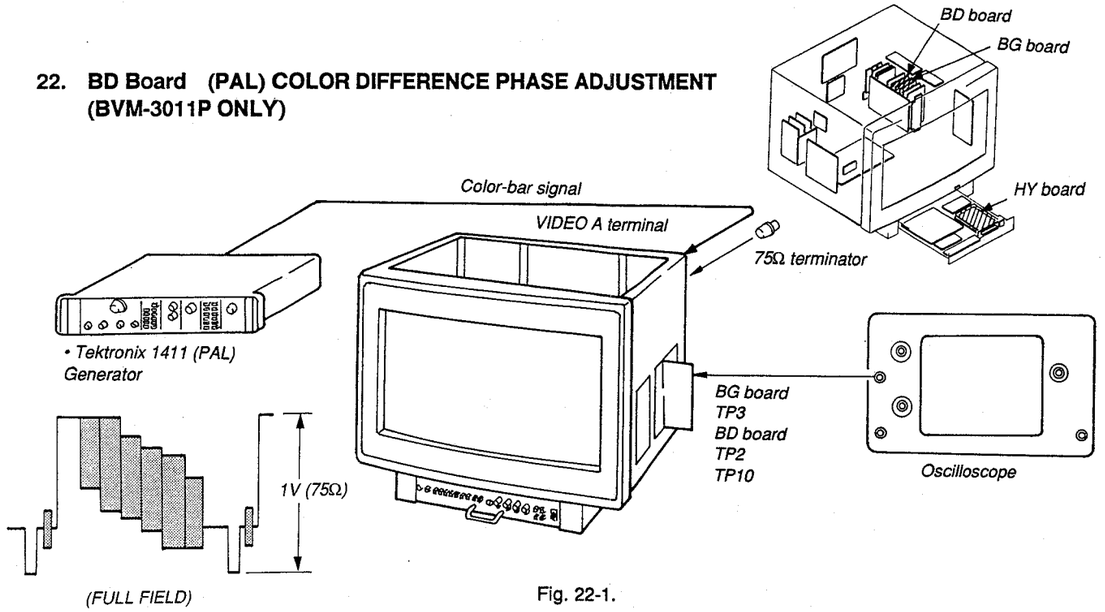


Fig. 22-1.

1. Complete the connections as shown in Fig. 22-1.
2. Turn on the power of this monitor. Set the INPUT switch to the 1 position, the SYNC switch to the INT position, and the PAL S/SECAM F/COMB S button to the ON.

B-Y System Adjustment

3. Connect the oscilloscope probe to TP3 on the BG board, and turn off the U (B-Y) signal of the signal generator.
4. Set the oscilloscope sensitivity to 20 mV/DIV, and adjust RV8 on the BD board so that the output waveform is flat. (See Fig. 22-2.)

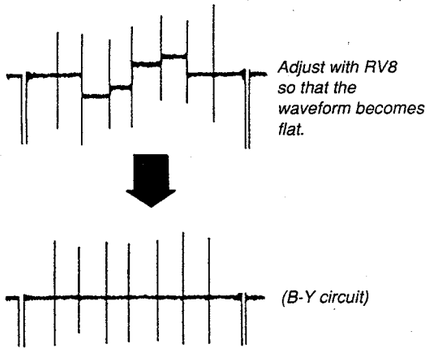
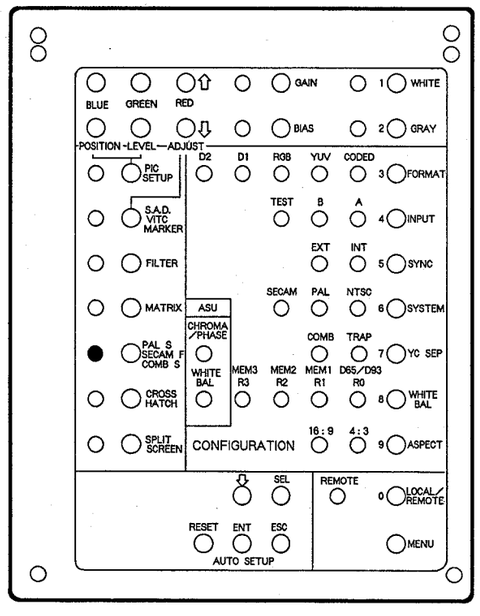


Fig. 22-2.

SUB CONTRAST PANEL (HY board)



Quad Adjustment

5. Connect the oscilloscope probe to TP on the BD board. Turn on the U signal of the signal generator, and turn off the V (R-Y) signal. Then adjust CV1 on the BD board so that the output waveform is flat. (See Fig. 22-3.)
6. Repeat the steps 3 to 6.

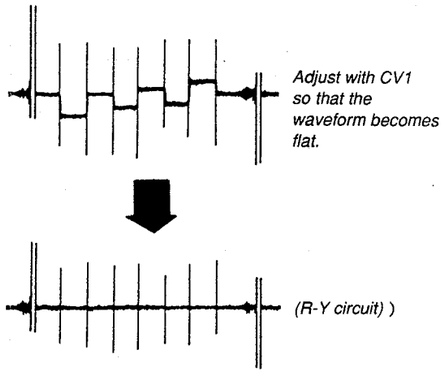
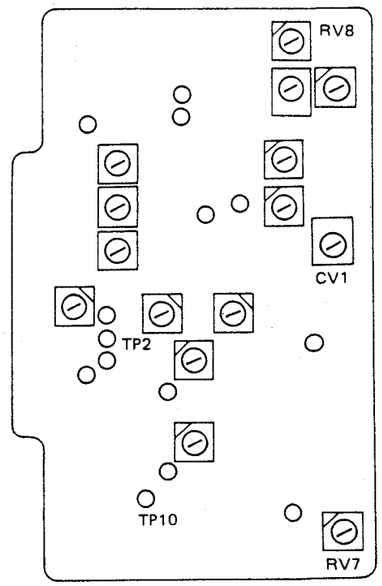


Fig. 22-3.

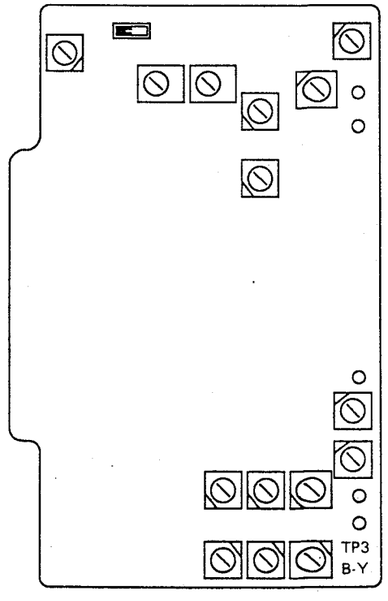
BD board



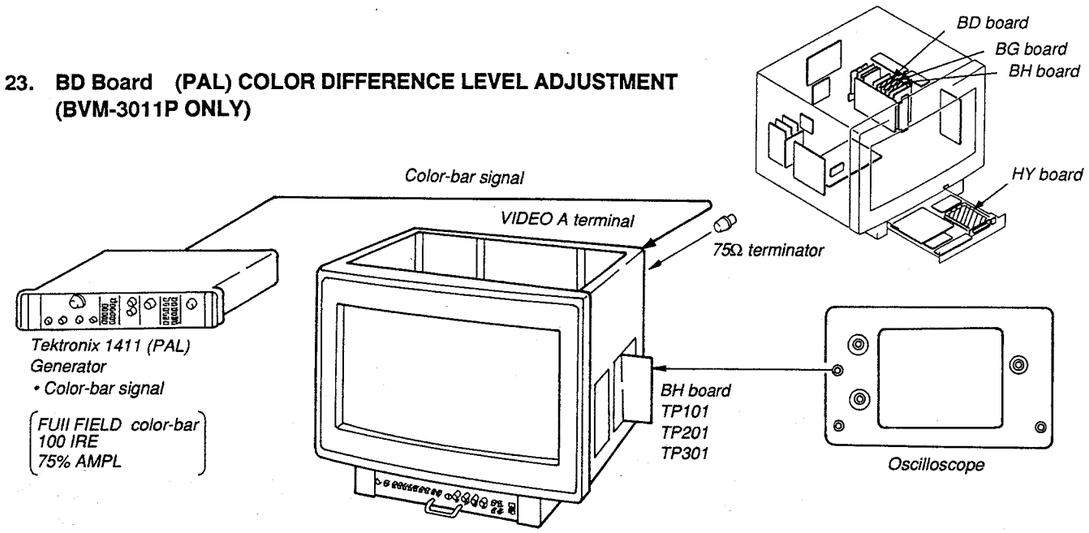
PAL-D Phase Adjustment

7. Set the PAL S/SECAM F/COMB S button to the OFF and turn on the V signal of the signal generator, and turn off U signal.
8. Connect the oscilloscope probe to TP10 on the BD board.
9. Adjust RV7 on the BD board so that the output waveform is flat. (See Fig. 22-2.)
10. Finally, perform the adjustments of 3 and 4 by directly mounting the BD board to the set, without using the extension board.

BG board

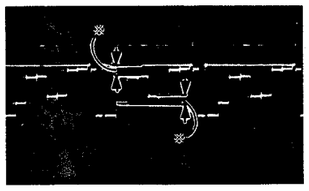


23. BD Board (PAL) COLOR DIFFERENCE LEVEL ADJUSTMENT (BVM-3011P ONLY)



- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL)·····ON

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP101 of BH board.
3. Adjust RV3 of BD or BM board so that the levels with ※ is flat as shown in Fig. 23-1.

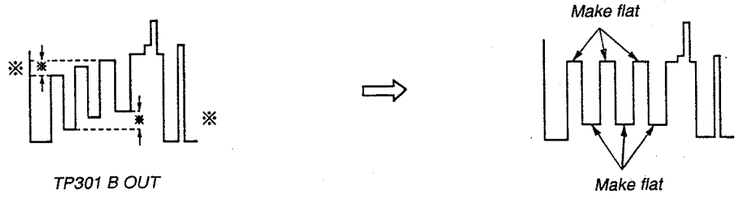


TP101 R OUT

Adjust the levels with ※ to be flat respectively using RV3 of BD board

Fig. 23-1.

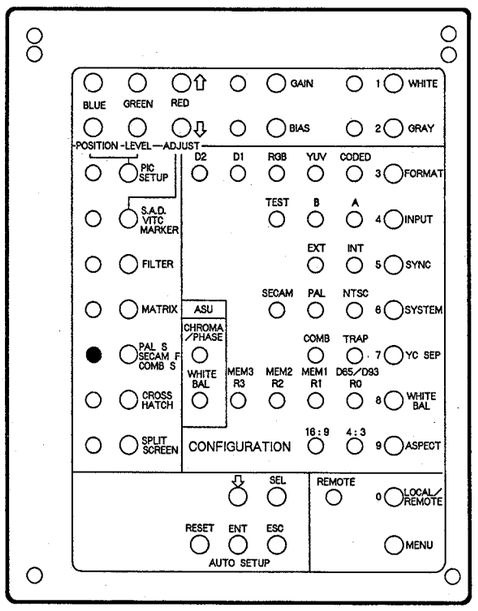
4. Connect an oscilloscope to the TP301 of BH board.
5. Adjust RV4 of BD board so that the output waveform as shown in Fig. 23-2.



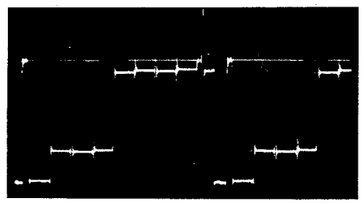
TP301 B OUT

Fig. 23-2.

SUB CONTRAST PANEL (HY board)



6. Connect an oscilloscope to the TP201 of BH board.
7. Adjust RV4 and RV5 of BG board so that the INPUT waveform becomes flat as shown in Fig. 23-3.



TP201 G OUT

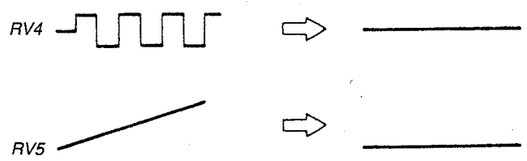
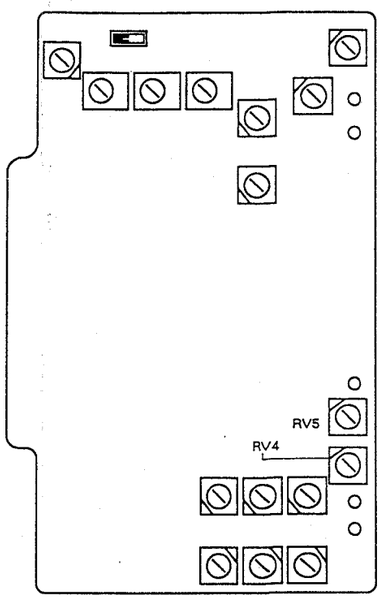
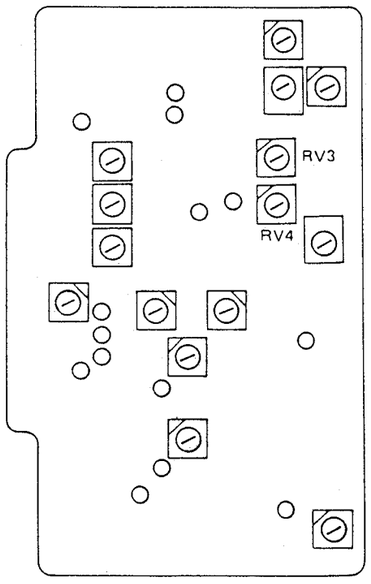


Fig. 23-3.

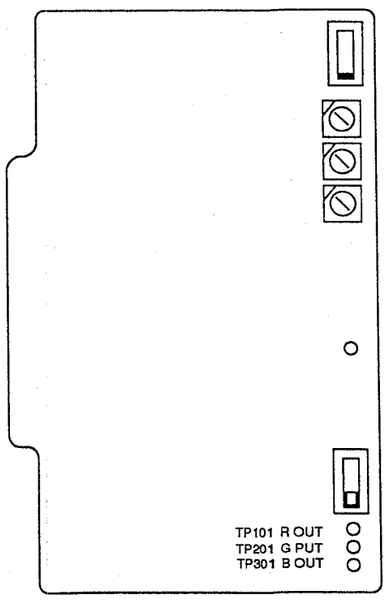
BG board



BD board



BH board



24. BD Board (PAL) PAL-D GAIN AND CCD BIAS ADJUSTMENT (BVM-3011P ONLY)

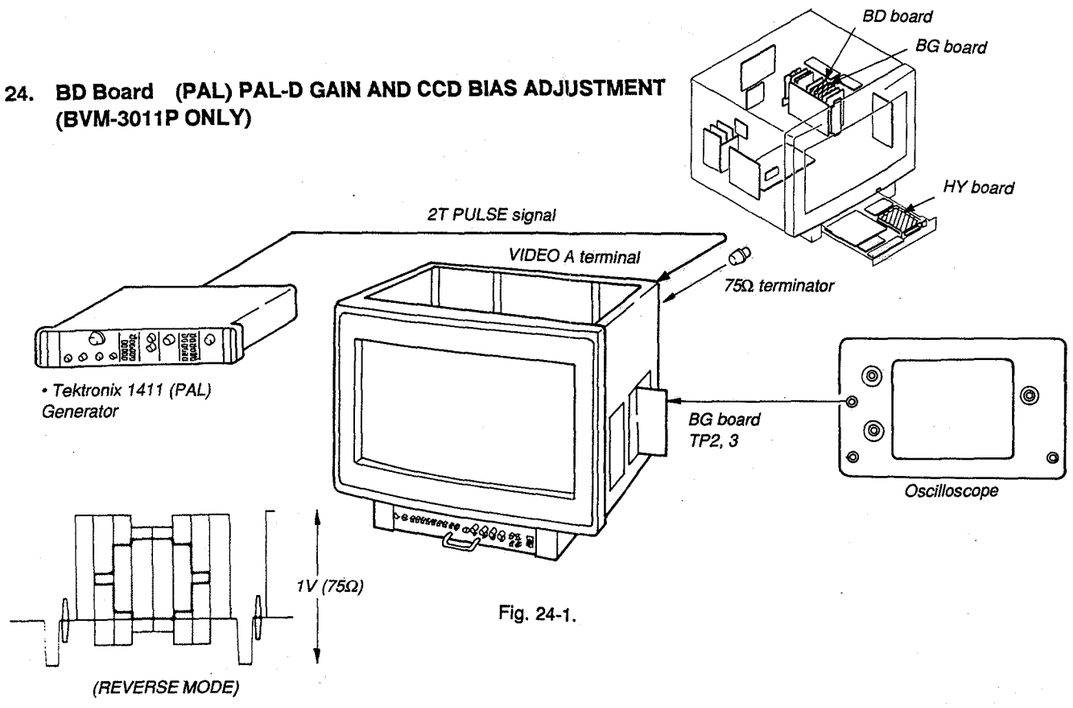


Fig. 24-1.

- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL)..... OFF

1. Complete the connection as shown in Fig. 24-1. Turn on the power of this monitor. Set the INPUT switch to the 1 position, and the SYNC switch to the INT position.
2. Connect the oscilloscope probe to TP2 on the BG board.
3. Turn RV5 and RV6 on the BD board fully clockwise.
4. By observing the waveform shown in Fig. 24-2, adjust RV9 on the BD board so that it becomes A=B.
5. Adjust RV5 on the BD board so that the waveform shown in Fig. 24-2 becomes flat.
6. Connect the probe of the oscilloscope to TP3 on the BG board and observe the section shown in Fig. 24-3.
7. Adjust RV10 on the BD board so that the waveform of the oscilloscope becomes A=B.
8. Adjust RV6 on the BD board so that the waveform shown in Fig. 24-3 becomes flat.

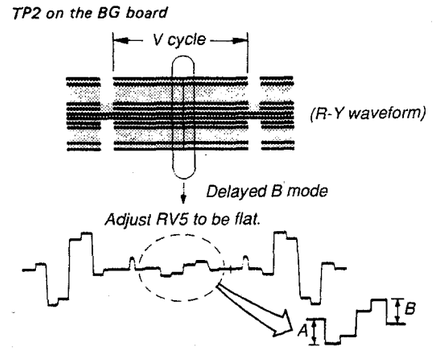


Fig. 24-2.

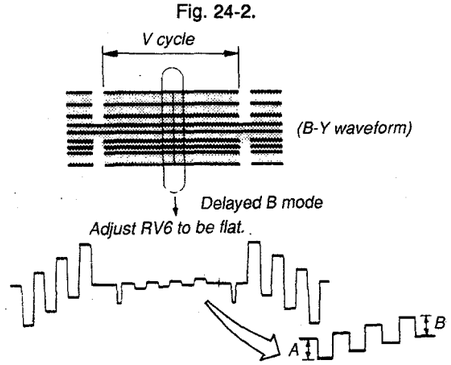
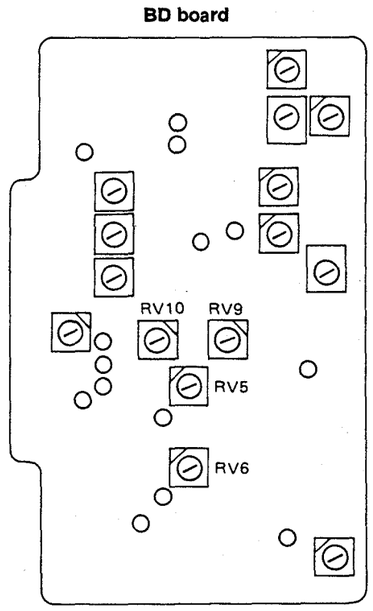
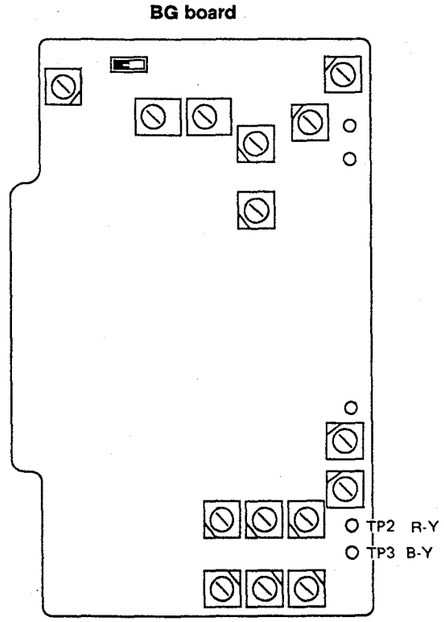
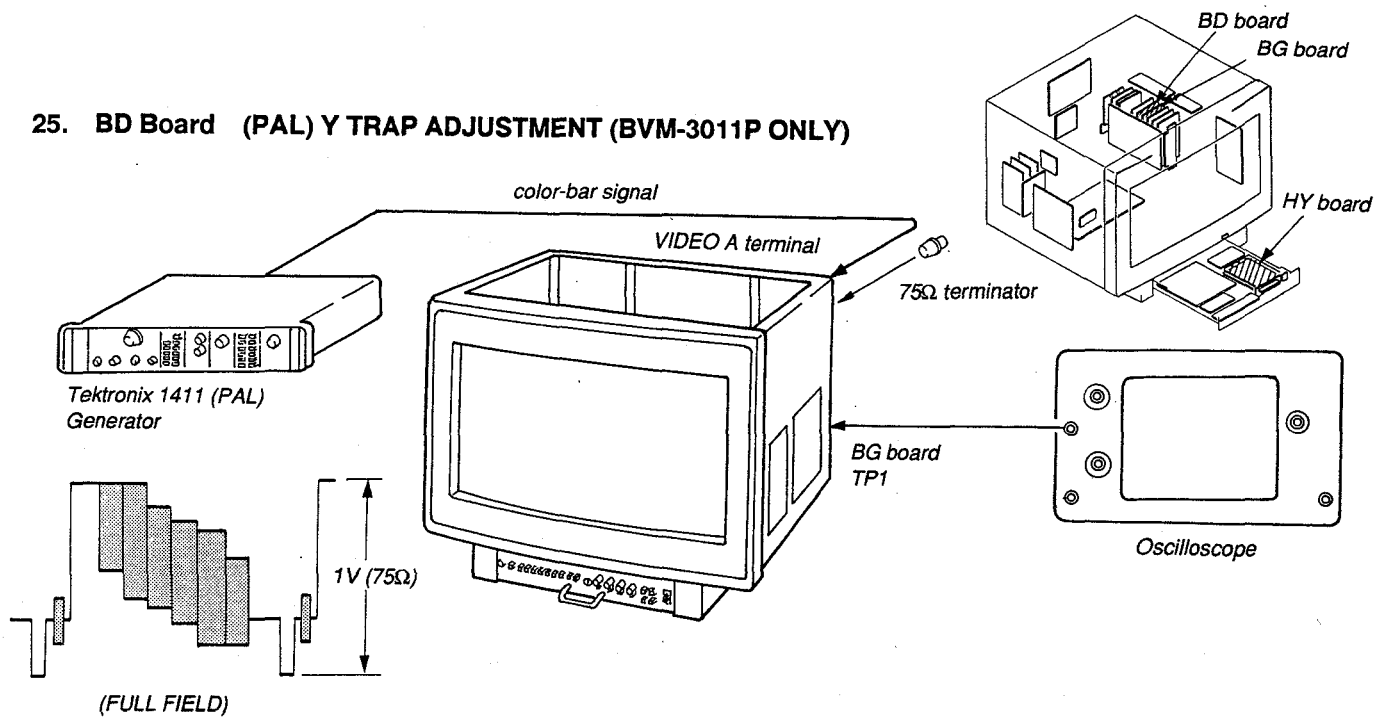


Fig. 24-3.





25. BD Board (PAL) Y TRAP ADJUSTMENT (BVM-3011P ONLY)



1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L1 of BD board so that 4.43 MHz (PAL) subcarrier is minimum as shown in Fig. 25-1.

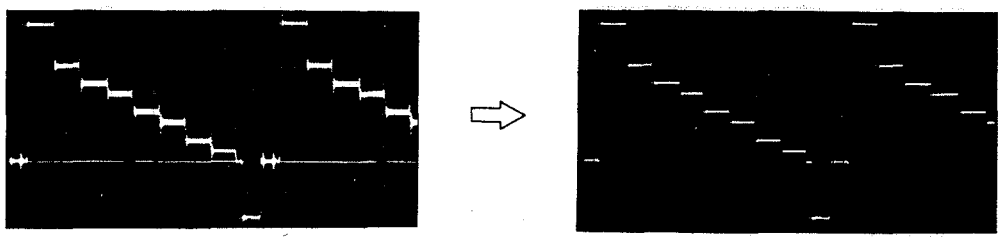
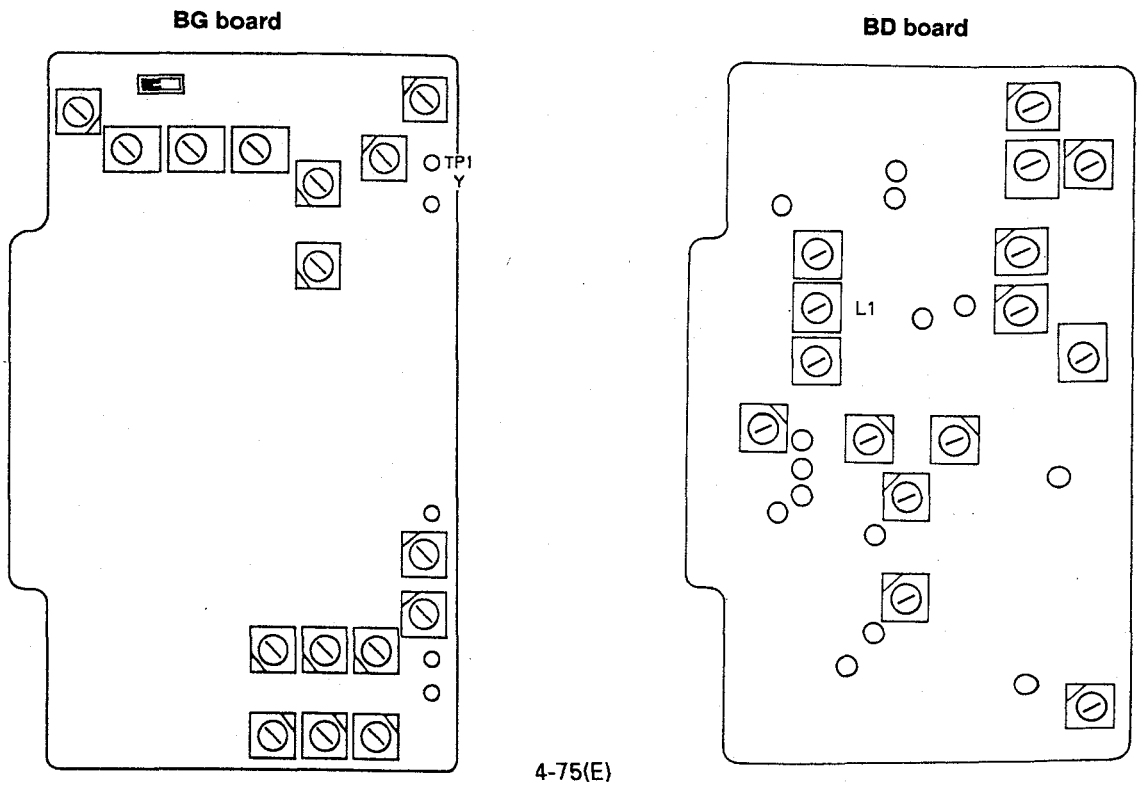
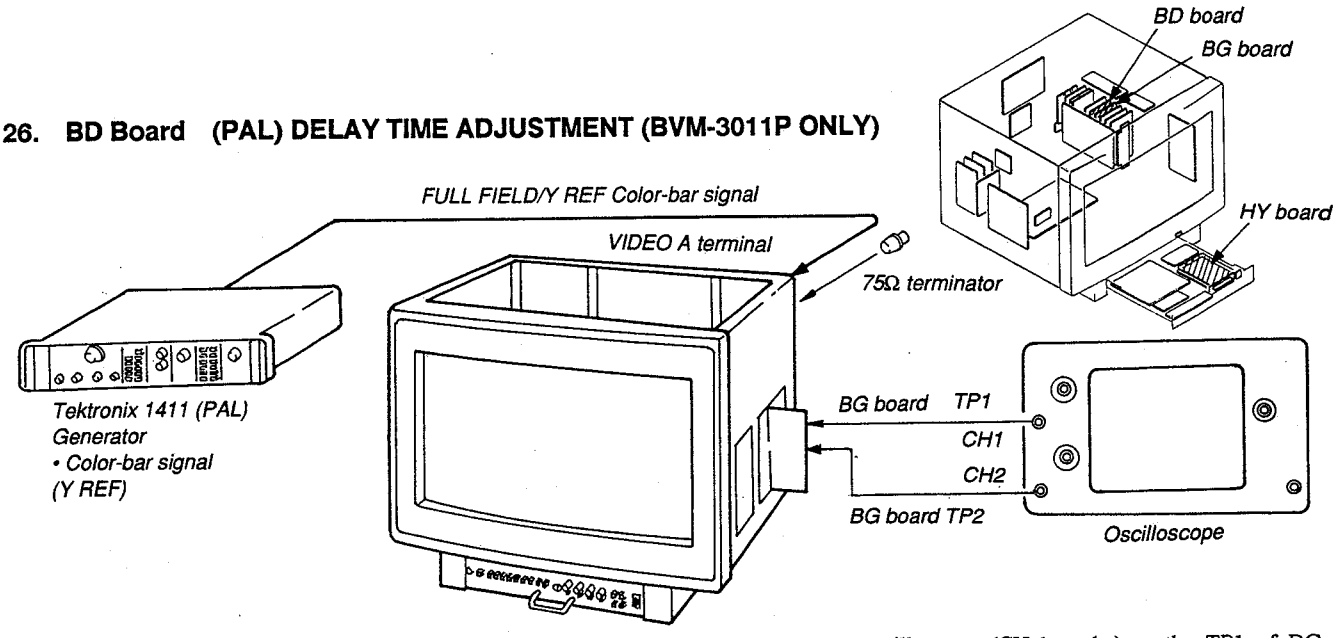


Fig. 25-1.



26. BD Board (PAL) DELAY TIME ADJUSTMENT (BVM-3011P ONLY)



- PAL S/SECAM F/COMB S button (SUB CONTROL PANEL)·····ON

1. Input color-bar signal (FULL FIELD/Y REF) to the VIDEO A terminal of the set.
2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP2 of BG board (VERT mode of the oscilloscope is CHOP).
3. Adjust RV1 of BD board so that the output waveform as shown in Fig. 26-1.

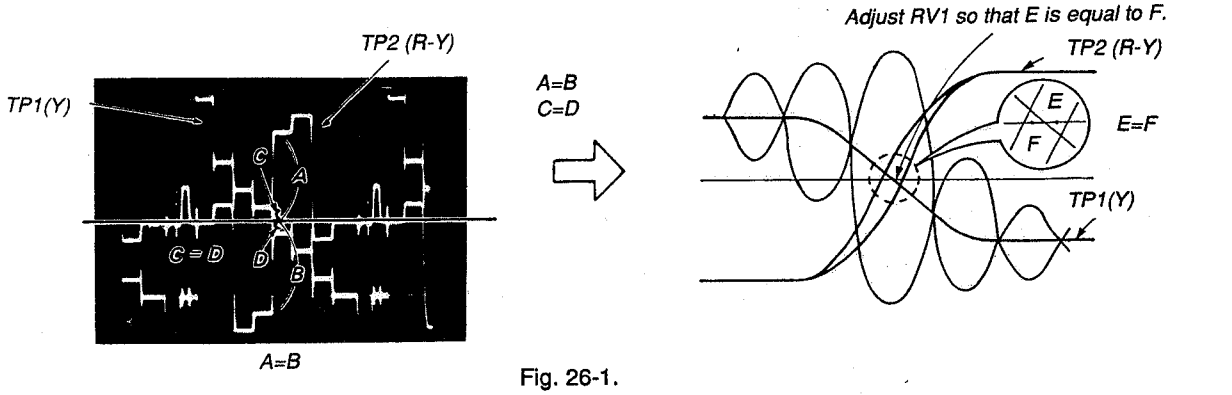
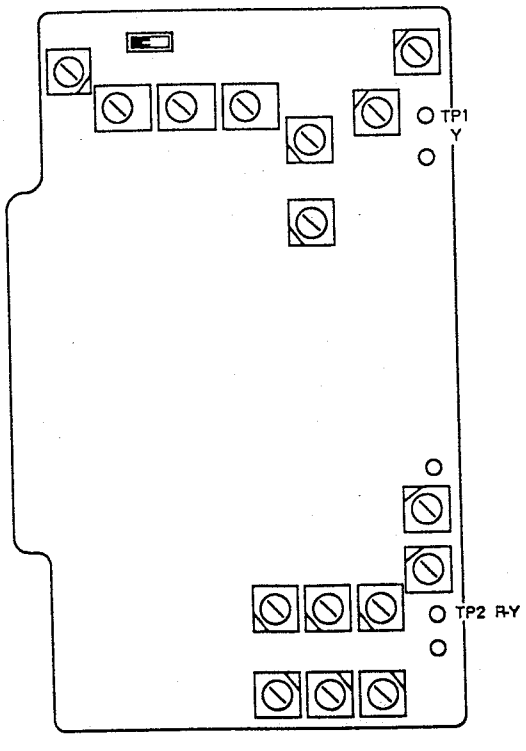
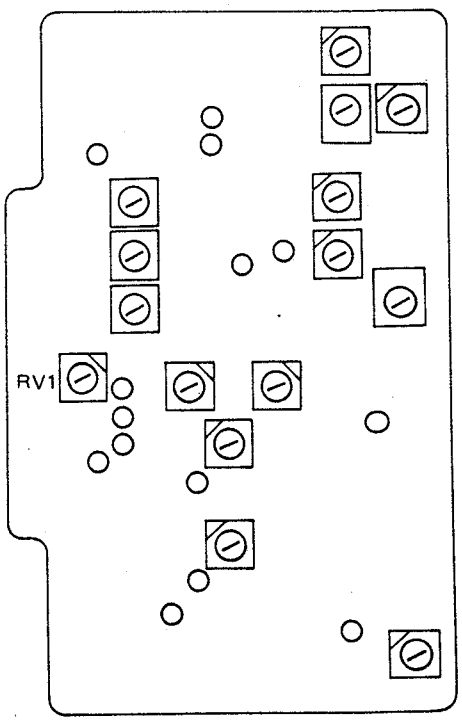


Fig. 26-1.

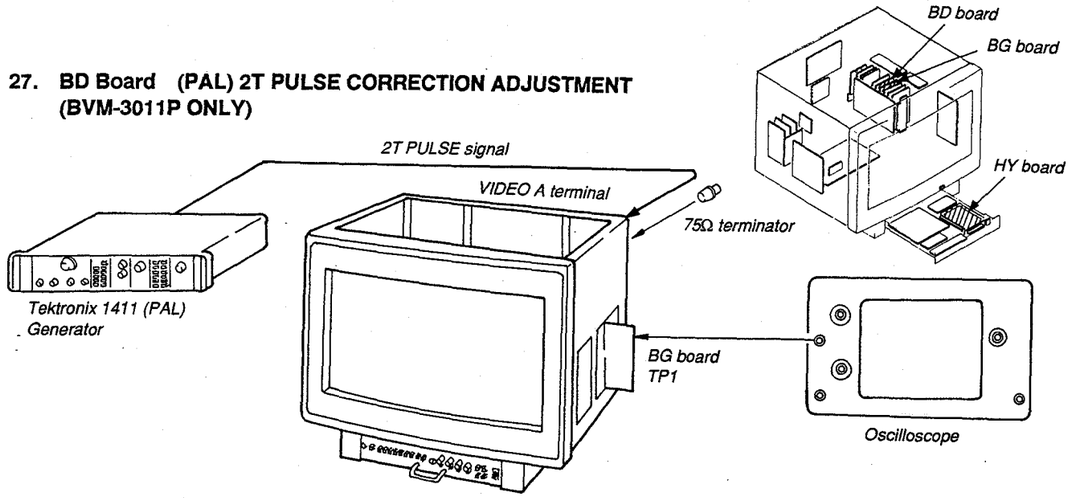
BG board



BD board



27. BD Board (PAL) 2T PULSE CORRECTION ADJUSTMENT (BVM-3011P ONLY)



1. Input 2T pulse signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L2 of BD or BM board so that the A is equal to B as shown in Fig. 27-1.
4. Change the input signal from 2T pulse to T pulse, and make sure the waveform balance is not lost extremely as shown in Fig. 27-1.

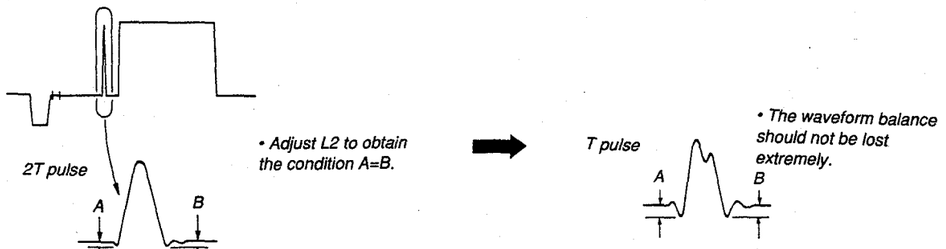
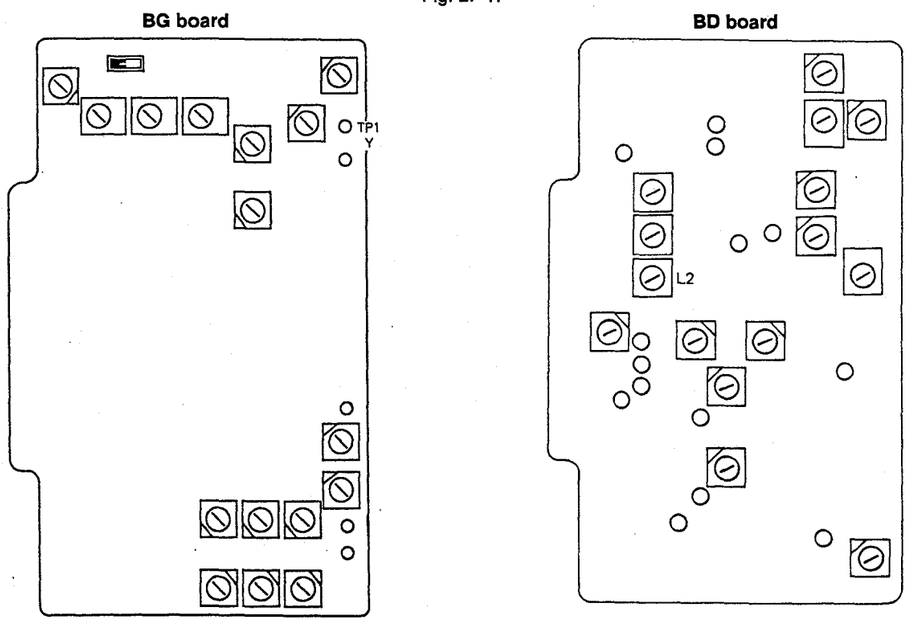
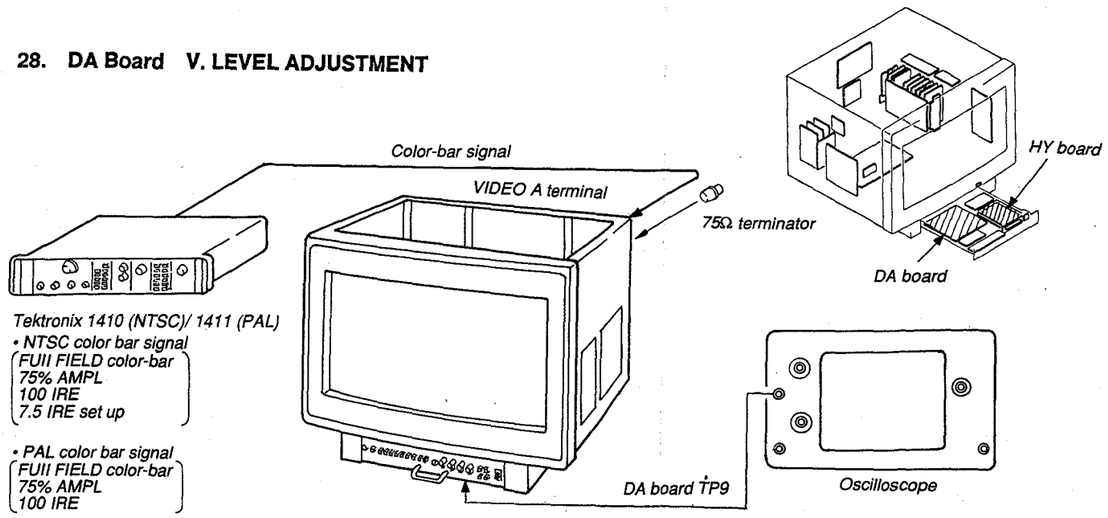


Fig. 27-1.



28. DA Board V. LEVEL ADJUSTMENT



PAL

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP9 on the DA board.
3. Adjust RV18 of the DA board so that output waveform is 12.0 Vp-p as shown in Fig. 28-1.

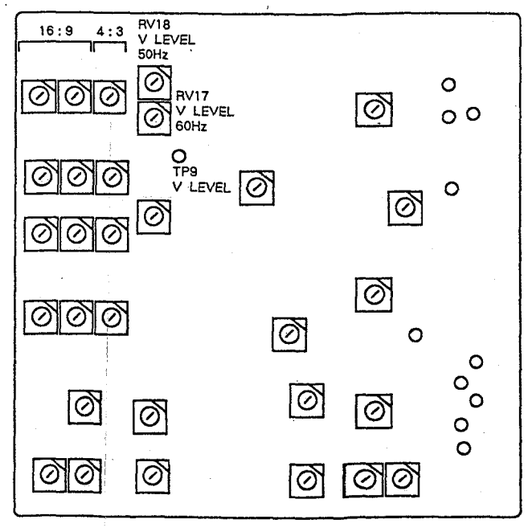
Fig. 28-1.

The following adjustment is required when a NTSC system signal is received.

NTSC

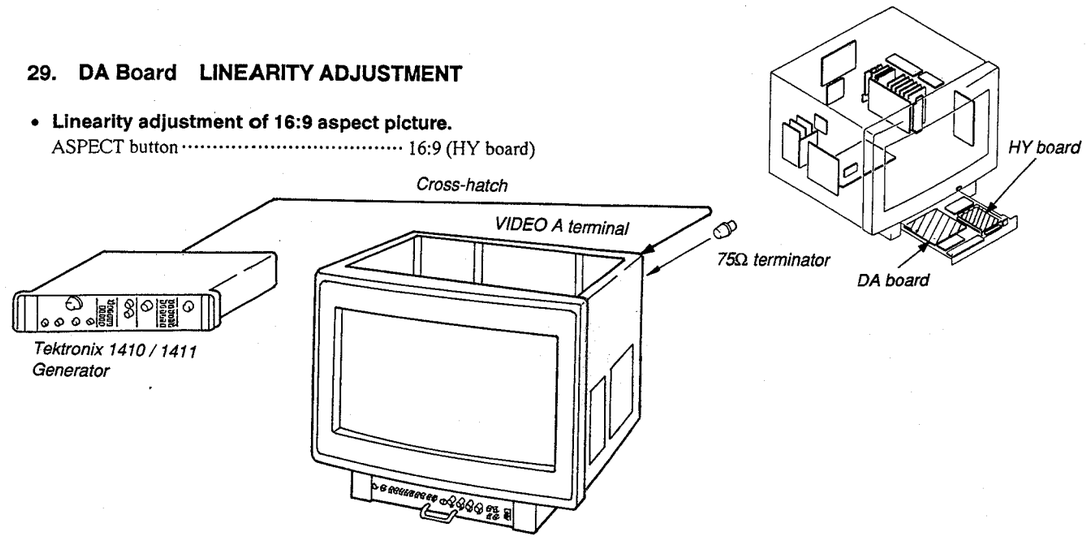
4. Input color-bar signal (TEK-1410) to the VIDEO A terminal of the set.
5. Connect an oscilloscope to the TP9 on the DA board.
6. Adjust RV17 on the DA board so that output waveform is 12.0 Vp-p.

DA board



29. DA Board LINEARITY ADJUSTMENT

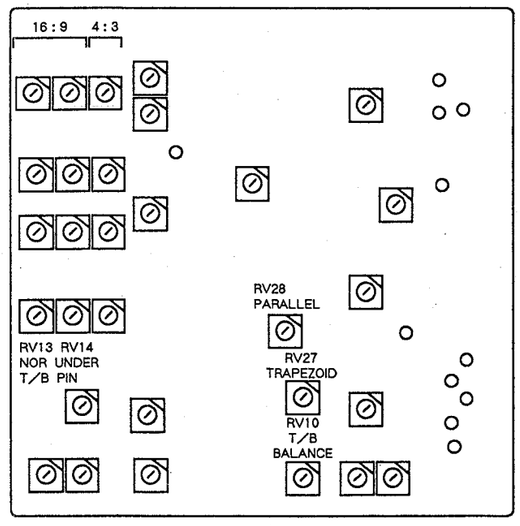
- **Linearity adjustment of 16:9 aspect picture.**
  ASPECT button ····· 16:9 (HY board)



TOP AND BOTTOM PIN ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust T&B pin distortion H PHASE by turning DA board RV27 (TRAPEZOID) as shown in Fig. 29-1.
3. Adjust T&B pin distortion gain by turning DA board RV13 as shown in Fig. 29-1.
4. Adjust T&B pin distortion vertical balance by turning DA board RV10 as shown in Fig. 29-1.
5. Adjust PARALLELO GRAM distortion by turning DA board RV28 (PARALLEL) as shown in Fig. 29-1.
6. Mark tracking by repeating 2 through 5.
7. UNDER SCAN switch (front panel) ····· UNDER (⏥)
8. Adjust T&B distortion gain by turning DA board RV14.

DA board



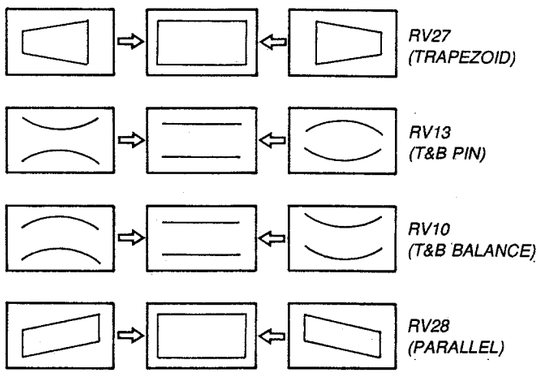
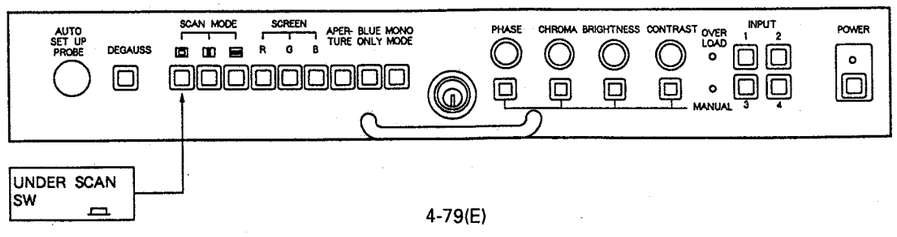


Fig. 29-1.

FRONT PANEL



V. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust V. CENTER by turning DA board RV21.
3. Adjust V. LIN BALANCE by turning DA board RV20 as shown in Fig. 29-2.
4. Adjust V. LIN GAIN by turning DA board RV22 as shown in Fig. 29-3.
5. Adjust V. HEIGHT by turning DA board RV23.
6. UNDER SCAN switch (Front panel) ····· UNDER (⏥)
7. Adjust V. HEIGHT by turning DA board RV24.
8. Mark tracking by repeating steps 2. through 5.

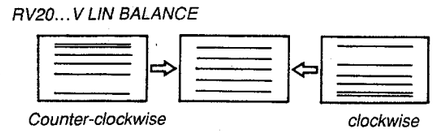


Fig. 29-2.

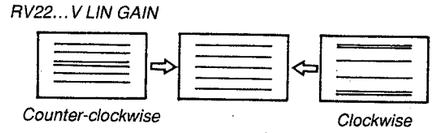


Fig. 29-3.

SIDE PIN ADJUSTMENT

1. Receive cross-hatch signal and with V. LINE only.
2. Adjust SIDE PIN by turning DA board RV15 as shown in Fig. 29-4.
3. Adjust SIDE PIN TILT by turning DA board RV19 as shown in Fig. 29-5.
4. Adjust H. CENTER LINE by turning DA board RV25 as shown in Fig. 29-6.

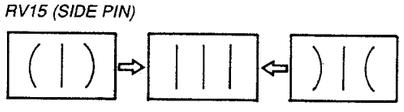


Fig. 29-4.

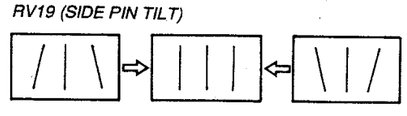


Fig. 29-5.

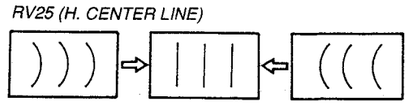


Fig. 29-6.

5. UNDER SCAN switch (Front panel (L)) ····· UNDER (⏥)
6. Adjust SIDE PIN by turning DA board RV16.

H. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with V-LINE only.
2. Adjust H. LINEARITY by turning DA board RV6 (H. LIN GAIN) as shown in Fig. 29-7.

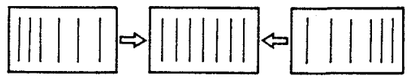
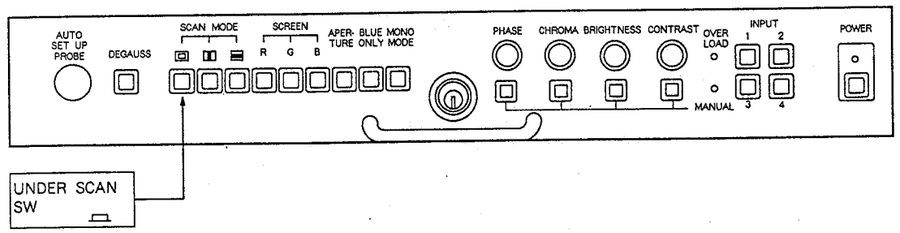
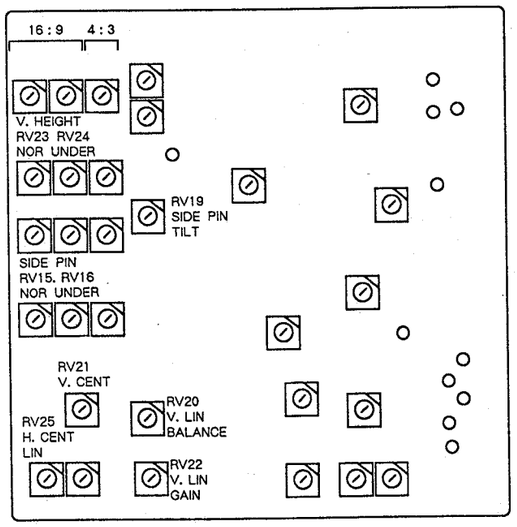


Fig. 29-7.

FRONT PANEL



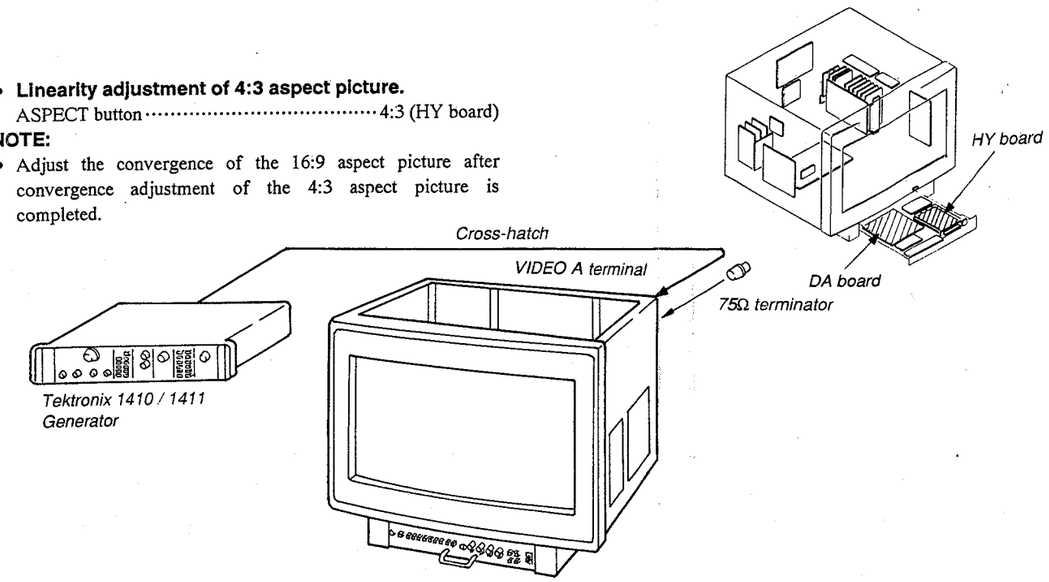
DA board



- **Linearity adjustment of 4:3 aspect picture.**
  ASPECT button ..... 4:3 (HY board)

NOTE:

- Adjust the convergence of the 16:9 aspect picture after convergence adjustment of the 4:3 aspect picture is completed.



TOP AND BOTTOM PIN ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust T&B pin distortion gain by turning DA board RV30 as shown in Fig. 29-8.

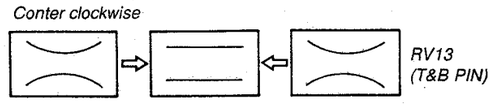


Fig. 29-8.

V. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust V. HEIGHT by turning DA board RV32 as shown in Fig. 29-9.

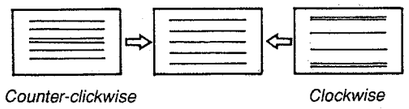


Fig. 29-9.

SIDE PIN ADJUSTMENT

1. Receive cross-hatch signal and with V. LINE only.
2. Adjust SIDE PIN by turning DA board RV31 as shown in Fig. 29-10.

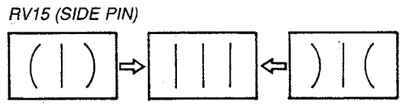


Fig. 29-10.

H. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with V-LINE only.
2. Adjust H. WIDTH by turning DA board RV29 as shown in Fig. 29-11.

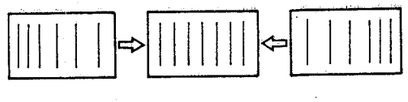
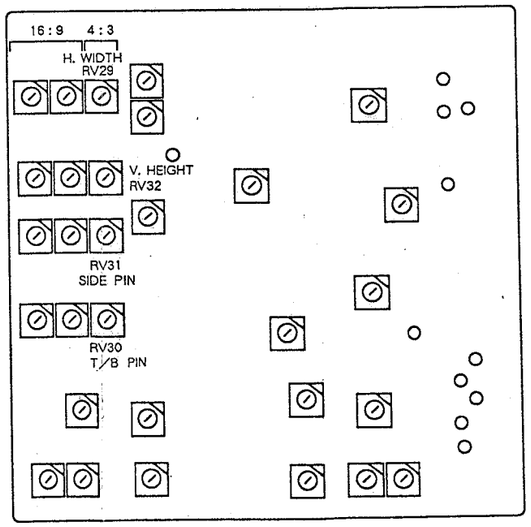


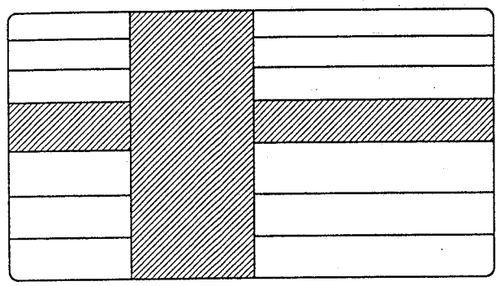
Fig. 29-11.

DA board



30. H. FREQ ADJUSTMENT

1. Receive cross-hatch signal, and SYNC selector to EXT (⏥)
2. Adjust until the picture stops drifting or moves slowly by turning DA board RV5 as shown in Fig. 30-1.



* Adjust so that the picture either stops drifing or moves slowly.

Fig. 30-1.

31. DA Board H. CENTER, BLK, H. PHASE ADJUSTMENT

1. Receive monoscope signal, and UNDER SCAN switch to UNDER (⏥).
2. Picture tube
   - V. DELAY switch ..... IN (⏥)
3. Adjust RV1 and RV7 on the DA board so that the raster can all be seen RV1 and RV7 as shown in Fig. 31-1.

H. CENTER

4. Adjust RV26 on the DA board so that the out side portions of the raster become equal to at the right and the left sides as shown in Fig. 31-1.

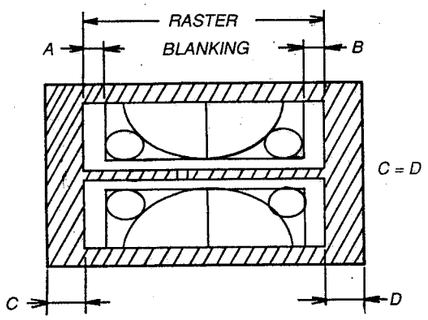


Fig. 31-1.

H. BLK Adjustment

5. Connect an oscilloscope to the TP1 on the DA board
6. Adjust RV1 on the DA board so that the H. BLK pulse width is 9.8 μs. Fig. 31-2.

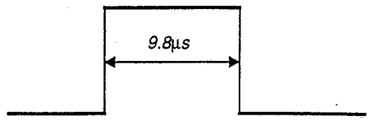
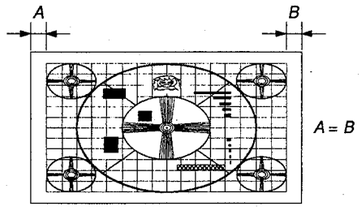


Fig. 31-2.

H. BLK PHASE Adjustment

7. Adjust RV7 on the DA board so that the blanking width at the right and the left sides are equal to as shown in Fig. 31-3.

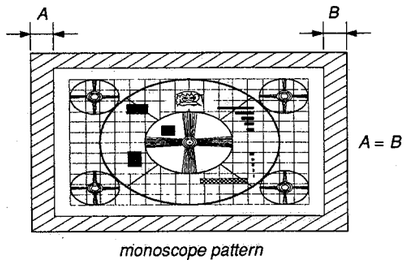


monoscope pattern

Fig. 31-3.

H. PHASE Adjustment

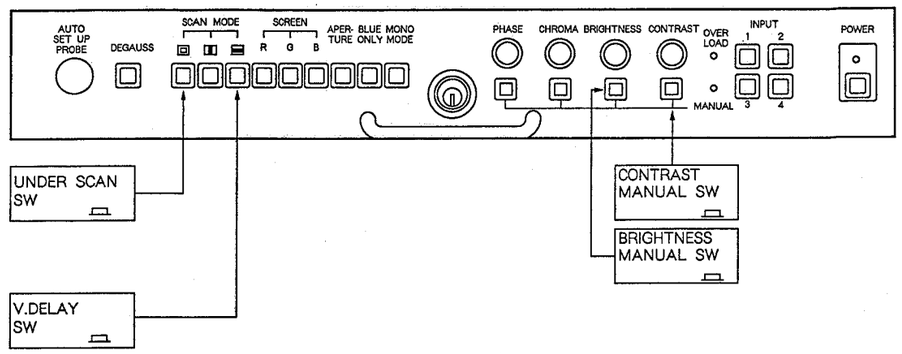
8. Adjust RV4 on the DA board so that the outside raster portions of the picture become equal at the right and the left sides as shown in Fig. 31-4.



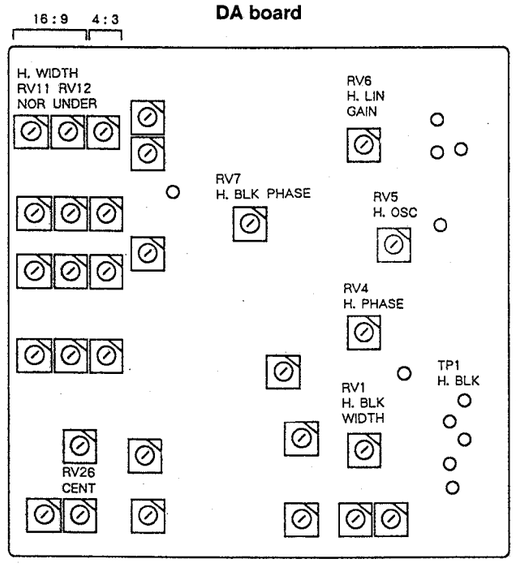
monoscope pattern

Fig. 31-4.

FRONT PANEL



DA board



32. DA Board H DELAY POSITION ADJUSTMENT

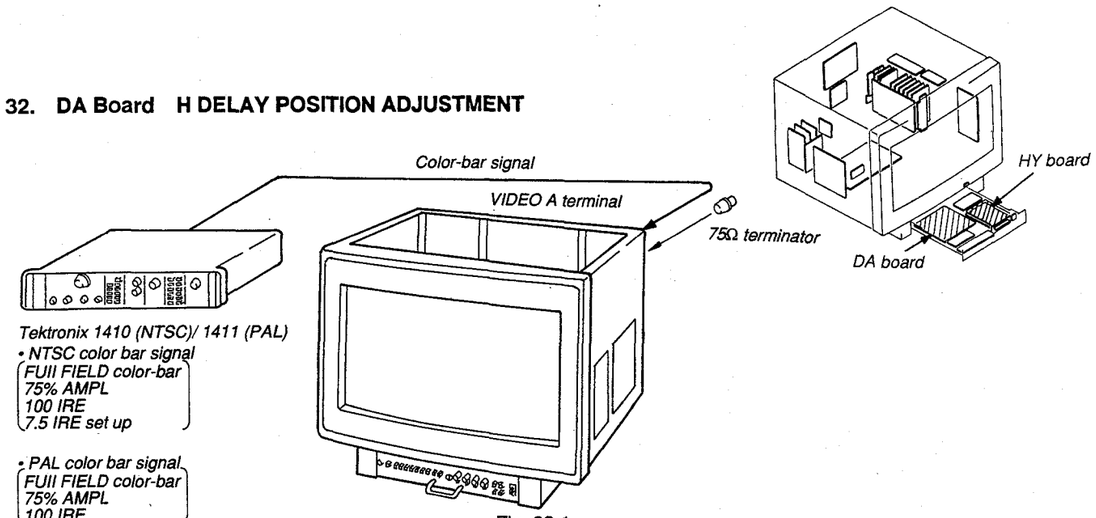
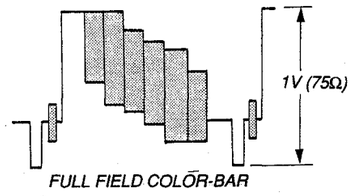


Fig. 32-1.



H. DELAY PULSE WIDTH ADJUSTMENT

1. Connect an oscilloscope to the TP2 on the DA board.
2. Adjust RV3 on the DA board so that PULSE width is equal when switching H-DELAY switch IN and OUT.

H. DELAY POSITION

1. Connect as shown in Fig. 32-1.
2. Turn the INPUT selector to "1" (⎍) SYNC button "INT" and, H DELAY & V DELAY SW to "IN" (⎍) (pulse close position).
3. Adjust the H-DELAY position as shown in Fig. 32-2. by turning DA Board RV2.

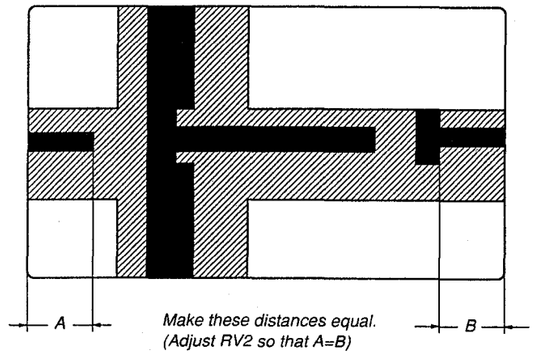
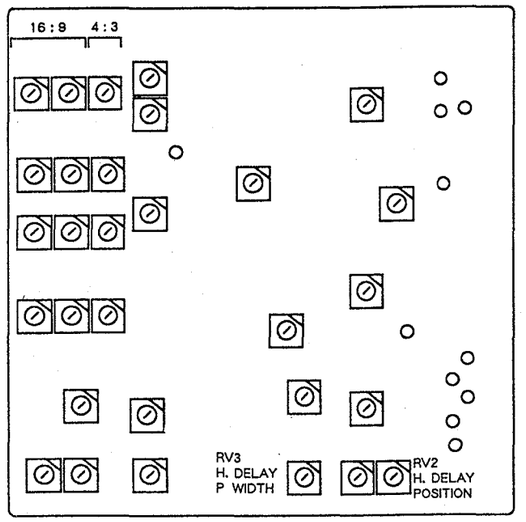
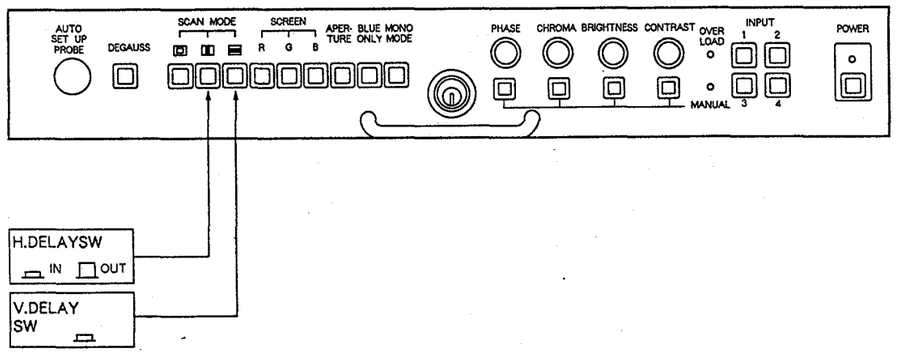


Fig. 32-2.

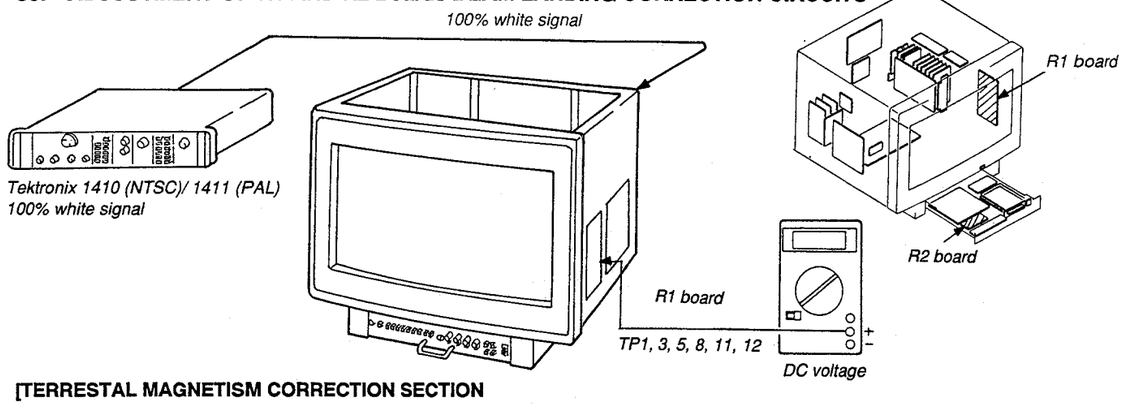
DA board



FRONT PANEL



33. ADJUSTMENT OF R1 AND R2 Boards BEAM LANDING CORRECTION CIRCUITS



[TERRESTAL MAGNETISM CORRECTION SECTION ADJUSTMENT]

1. Set the LANDING ADJ DIRECTION SW (SW1) on the R2 board to SE (6).
2. Connect a DC voltmeter to TP1 of the R1 board and adjust the RV1 so that the output voltage becomes 2.00 ± 0.01 Vdc.
3. Set the LANDING ADJ DIRECTION SW to S (8).
4. Connect a DC voltmeter to TP3 on the R board and adjust the RV2 so that the output voltage becomes 3.00 ± 0.01 Vdc.

Note: This setting value is for 0.25 gauss of the horizontal section of the terrestrial magnetism. If the horizontal section value differs, make the adjustment in reference to section 4-5. SET-UP ADJUSTMENT.

[ADJUSTMENT OF THE BEAM CURRENT CORRECTION SECTION]

1. Cut off R, G, B together with the CUT OFF SELECT on the front panel.
2. Connect a DC voltmeter to TP5 on the R board and adjust the RV3 so that the output becomes 60 ± 20 mV.
3. Receive the white signal (internal or external signal).
4. Turn on the CONTRAST MANUAL SW on the front panel and adjust the CONTRAST control so that the TP5 output becomes 2.2 Vdc.
5. Connect TP5 and TP6, TP5 and TP7, with short clips, respectively.
6. Connect a DC voltmeter to TP8 and adjust the RV4 so that the output becomes 0 ± 0.1 Vdc.
7. Connect TP5 and TP9, TP5 and TP10, with short clips, respectively.
8. Connect a DC voltmeter to TP11 and adjust the RV5 so that the output becomes 0 ± 0.1 Vdc.

[OPERATION CONFIRMATION METHOD OF LANDING ADJUSTMENT (R2 BOARD)]

1. Receive the white signal (internal or external signal).
2. Select pure green color by the CUT OFF SELECT on the N board and match the LANDING ADJ DIRECTION SW (SW1) to E (4).
3. Set to ON both the LANDING ADJ ON/OFF SW (SW2) and LANDING FINE ADJ ON/OFF SW (SW3) on the W board.
4. Set the volumes RV106 to RV111 to the mechanical center.
5. Confirm that the left upper corner becomes redish when RV100 is turned counterclockwise and it becomes bluish when turned clockwise. Keep the poor purity as it is.
6. Confirm the same with RV101 to RV105 and keep them in poor purity.
7. Set the LANDING FINE ADJ ON/OFF SW (SW3) to OFF and confirm that the purity becomes good.
8. Set the LANDING FINE ADJ ON/OFF SW (SW2) to ON.
9. Set the LANDING FINE ADJ ON/OFF SW (SW2) to OFF and confirm that the purity becomes good.
10. Set the LANDING ADJ ON/OFF SW to ON.
11. Set the volumes RV100 to RV105 to the mechanical center.
12. Set the LANDING FINE ADJ ON/OFF SW (SW3) to OFF.
13. Turn the LANDING ADJ DIRECTION SW (SW1) by one step at a time and confirm that the screen color smoothly changes.

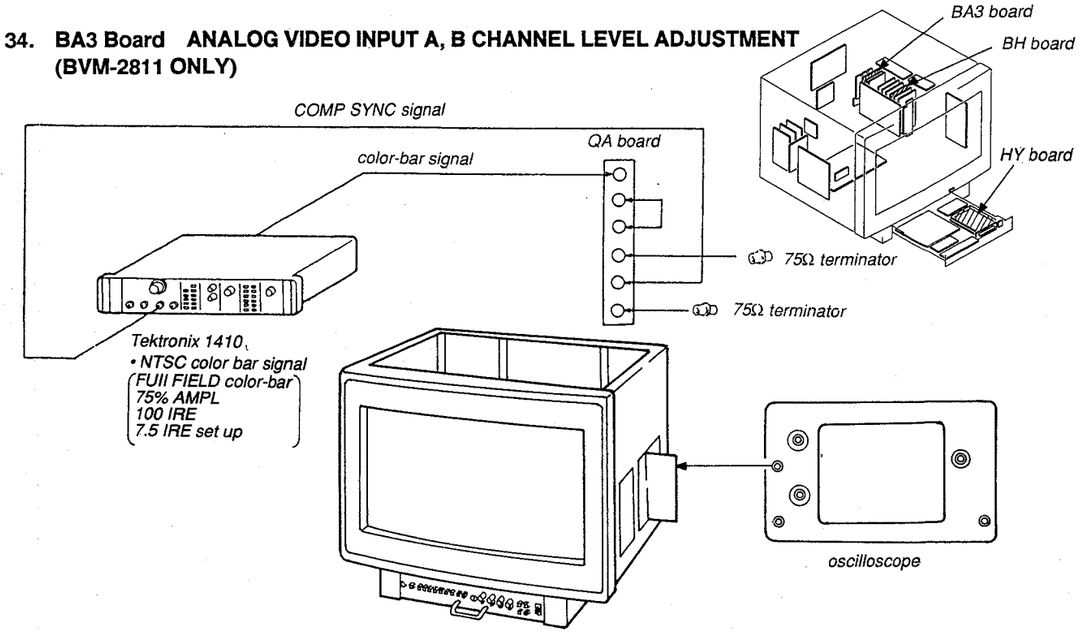
W board

Note:

RV100	RV102	RV104
RV101	RV103	RV105

- The screen corresponds to the adjustment volumes (RV100 to RV105).

34. BA3 Board ANALOG VIDEO INPUT A, B CHANNEL LEVEL ADJUSTMENT (BVM-2811 ONLY)



1. Input a color-bar signal to VIDEO terminal (QA board) of the set.
   - INPUT selector (FRONT PANEL) ·····1 (⎓)
   - SYNC button (SUB CONTROL PANEL)····· EXT
   - MODE selector (FRONT PANEL) ·····MONO (⎓)
2. Connect an oscilloscope to TP101 of BH board.
3. Adjust RV101 of BA3 board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 34-1.
4. Select the 2ch INPUT.
   - INPUT selector (FRONT PANEL) ·····2 (⎓)
   - MODE selector (FRONT PANEL) ·····MONO (⎓)
   - INPUT button (SUB CONTROL PANEL)····· B
5. Adjust RV201 of the BA3 board in a similar manner of step 3.

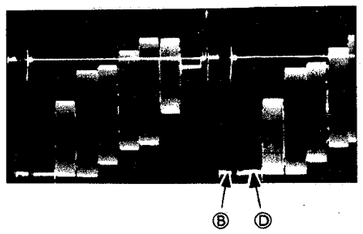
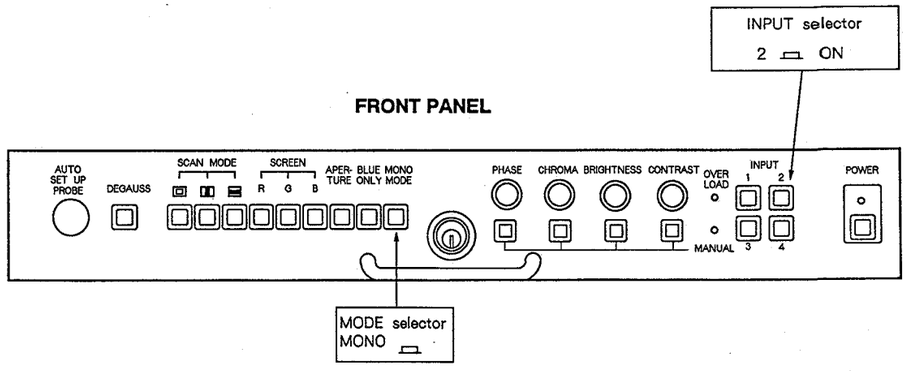
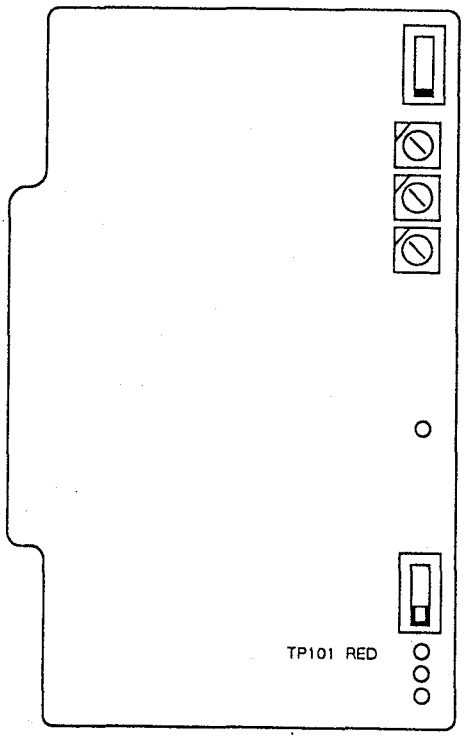


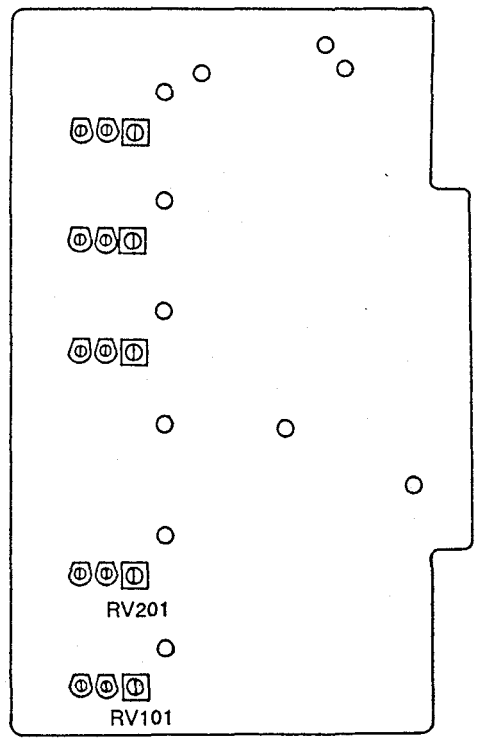
Fig. 34-1.



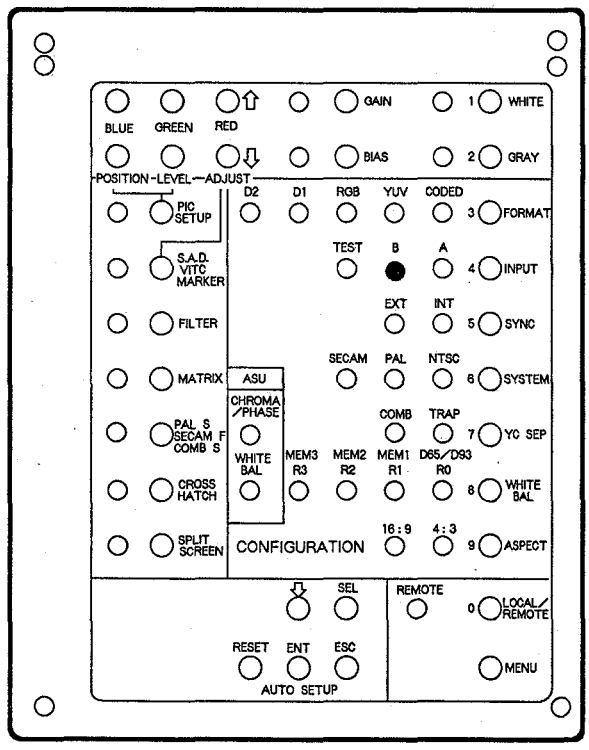
BH board



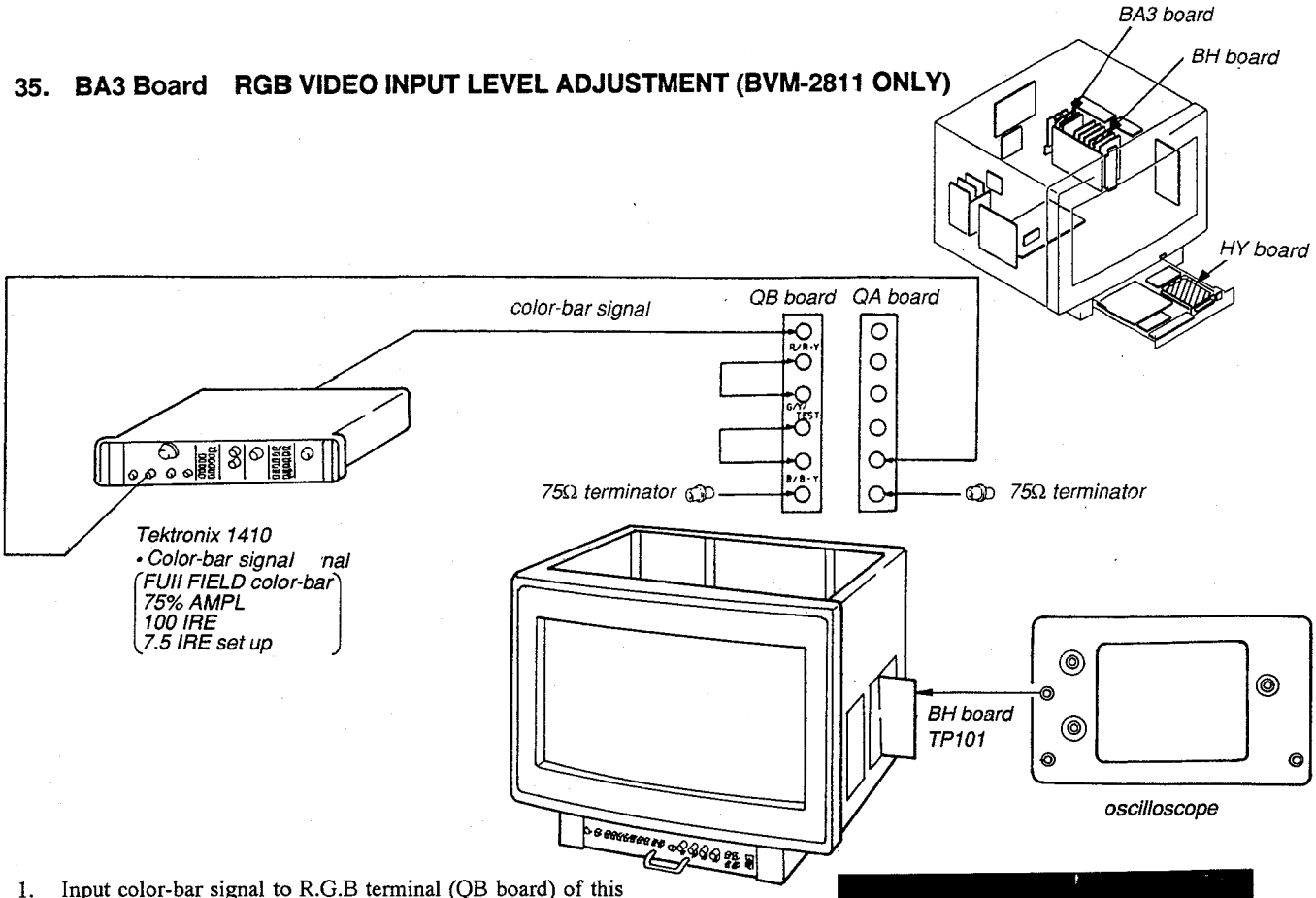
BA3 board



SUB CONTROL PANEL (HY board)



35. BA3 Board RGB VIDEO INPUT LEVEL ADJUSTMENT (BVM-2811 ONLY)



1. Input color-bar signal to R.G.B terminal (QB board) of this set, also EXT-COMP-SYNC signal to COMP VIDEO terminal (QA board).
   - INPUT selector (FRONT PANEL) ·····2 (⎓)
   - SYNC button (SUB CONTROL PANEL)····· EXT
   - FORMAT button (SUB CONTROL PANEL) ····· RGB
2. Connect an oscilloscope to TP101 of BH board.
3. Adjust RV401 of BA3 board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 35-1.
4. Connect an oscilloscope to TP201 of BH board.
5. Adjust RV501 of BA3 board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 35-1.
6. Connect an oscilloscope to TP101 of BH board.
7. Adjust RV601 of BA3 board so that the Ⓓ (100 IRE level) coincides with Ⓑ (100% white level) as shown in Fig. 35-1.

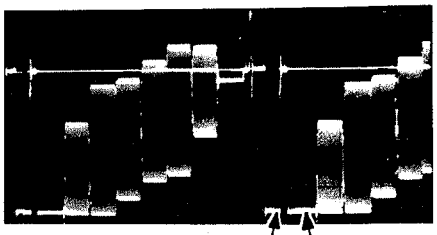
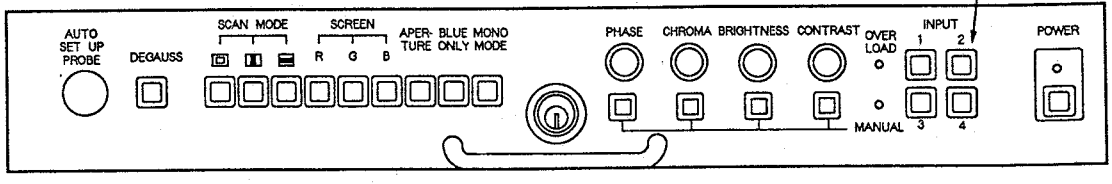


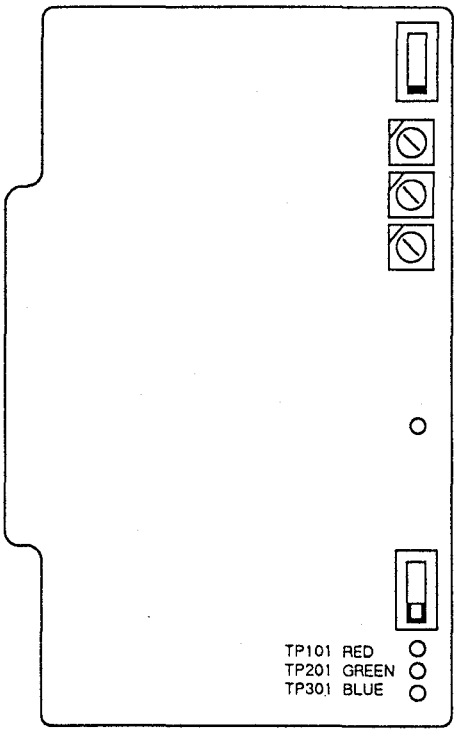
Fig. 35-1.

INPUT selector
2 ⎓ ON

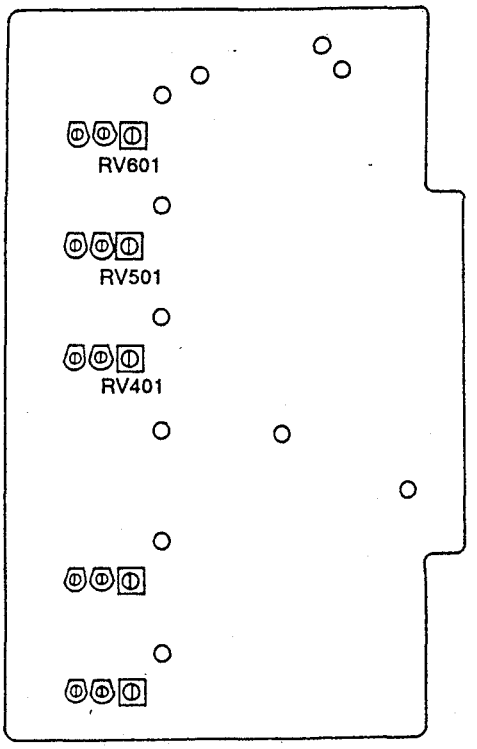
FRONT PANEL



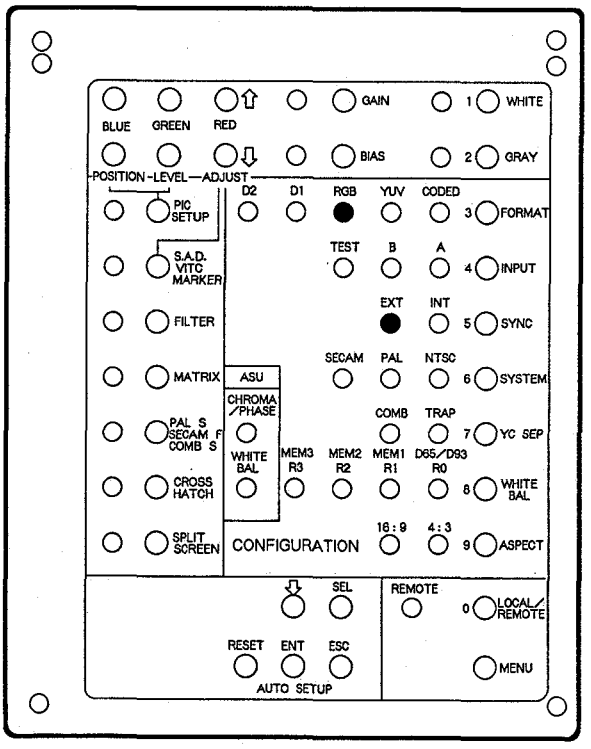
BH board



BA3 board



SUB CONTROL PANEL (HY board)



36. BA3 Board INPUT CIRCUIT FREQUENCY CHARACTERISTIC ADJUSTMENT (BVM-2811 ONLY)

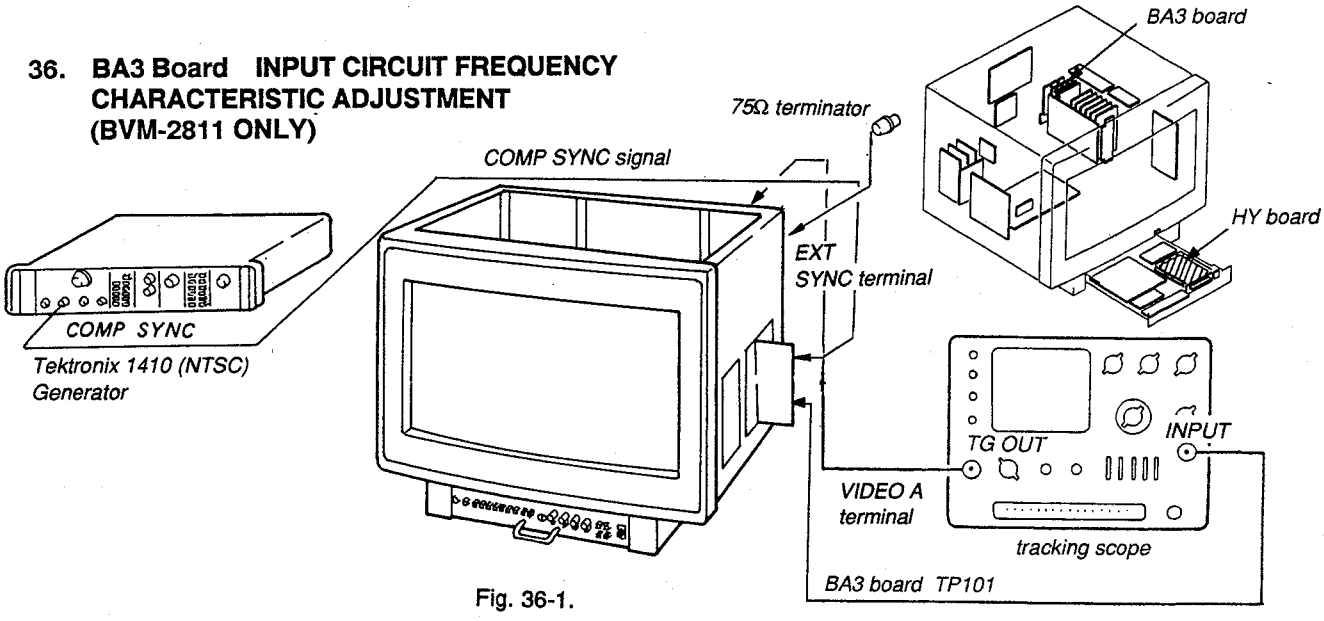


Fig. 36-1.

1. Complete the connection as shown in Fig. 36-1.
   - INPUT selector (FRONT PANEL) ·····1 (⎓)
   - SYNC button (SUB CONTROL PANEL)····· EXT
   - CONTRAST control (FRONT PANEL)·····Minimum
   - BRIGHTNESS control (FRONT PANEL) ·····Minimum
2. Adjust output waveform peak to 12 MHz with CV102 of the BA3 board as shown in Fig. 36-2.

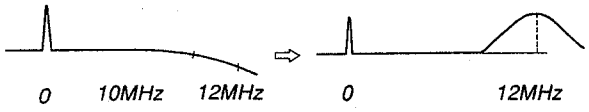


Fig. 36-2.

3. Adjust CV101 of the BA3 board so that the output waveform becomes flat in a range of 0 to 10 MHz as shown in Fig. 36-3.

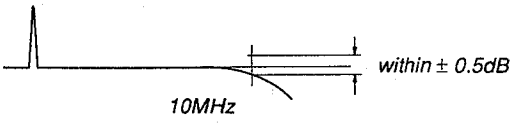
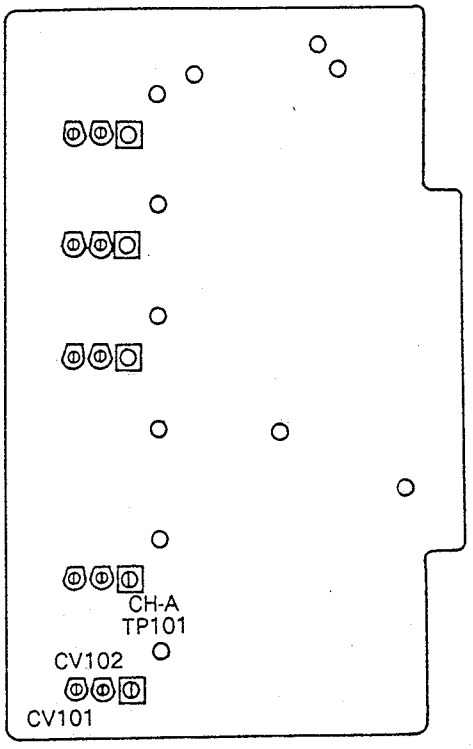
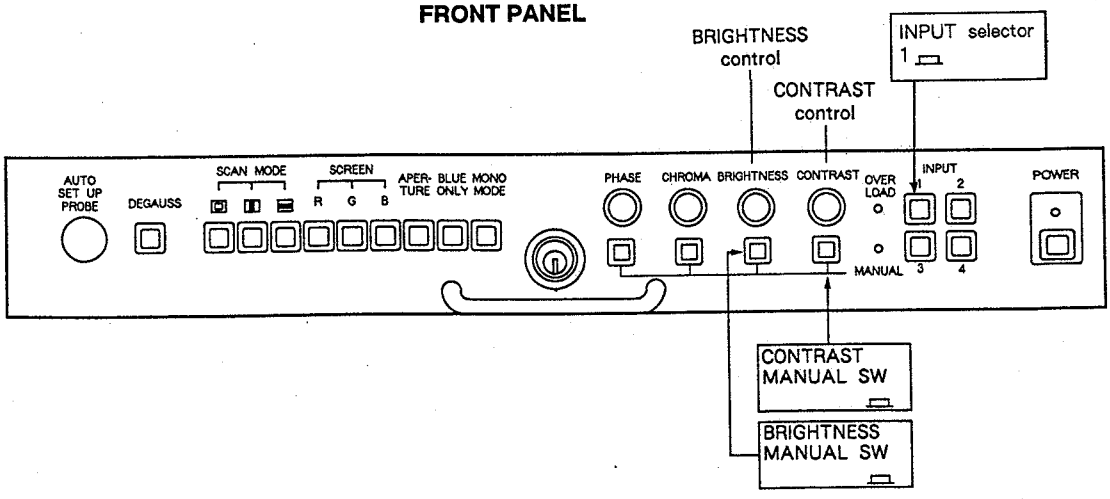


Fig. 36-3.



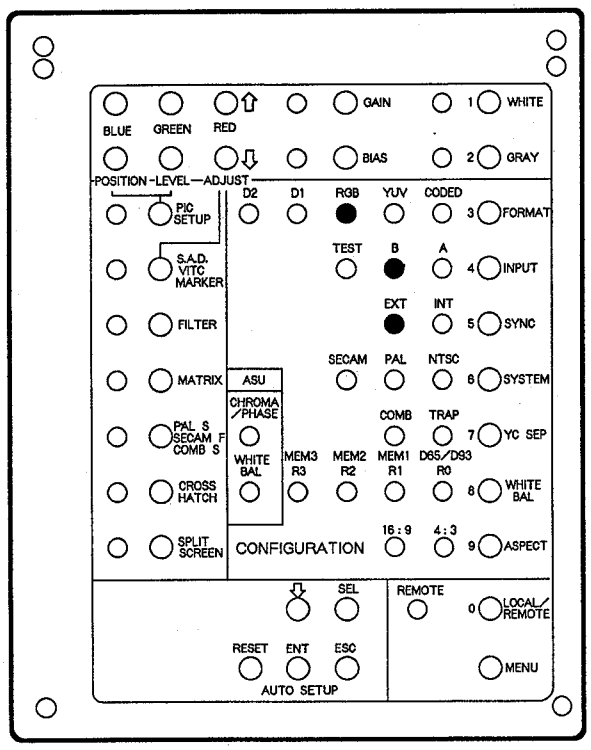
FRONT PANEL



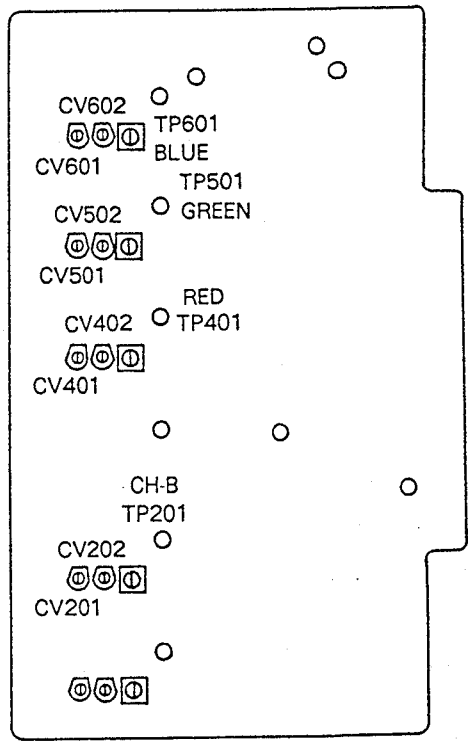
4. In the same way, perform the adjustment for 2 CH, under the following conditions.

INPUT	INPUT button (SUB CONTROL PANEL)	FORMAT button (SUB CONTROL PANEL)	TP (BA board)	CV (BA board)
B	B	CODED	TP201	CV201, 202
R/R-Y		RGB	TP401	CV401, 402
G/Y/TEST		RGB	TP501	CV501, 502
B/B-Y		RGB	TP601	CV601, 602

SUB CONTROL PANEL (HY board)



BA3 board



37. BV1 Board ADJUSTMENT (BVM-2811 ONLY)

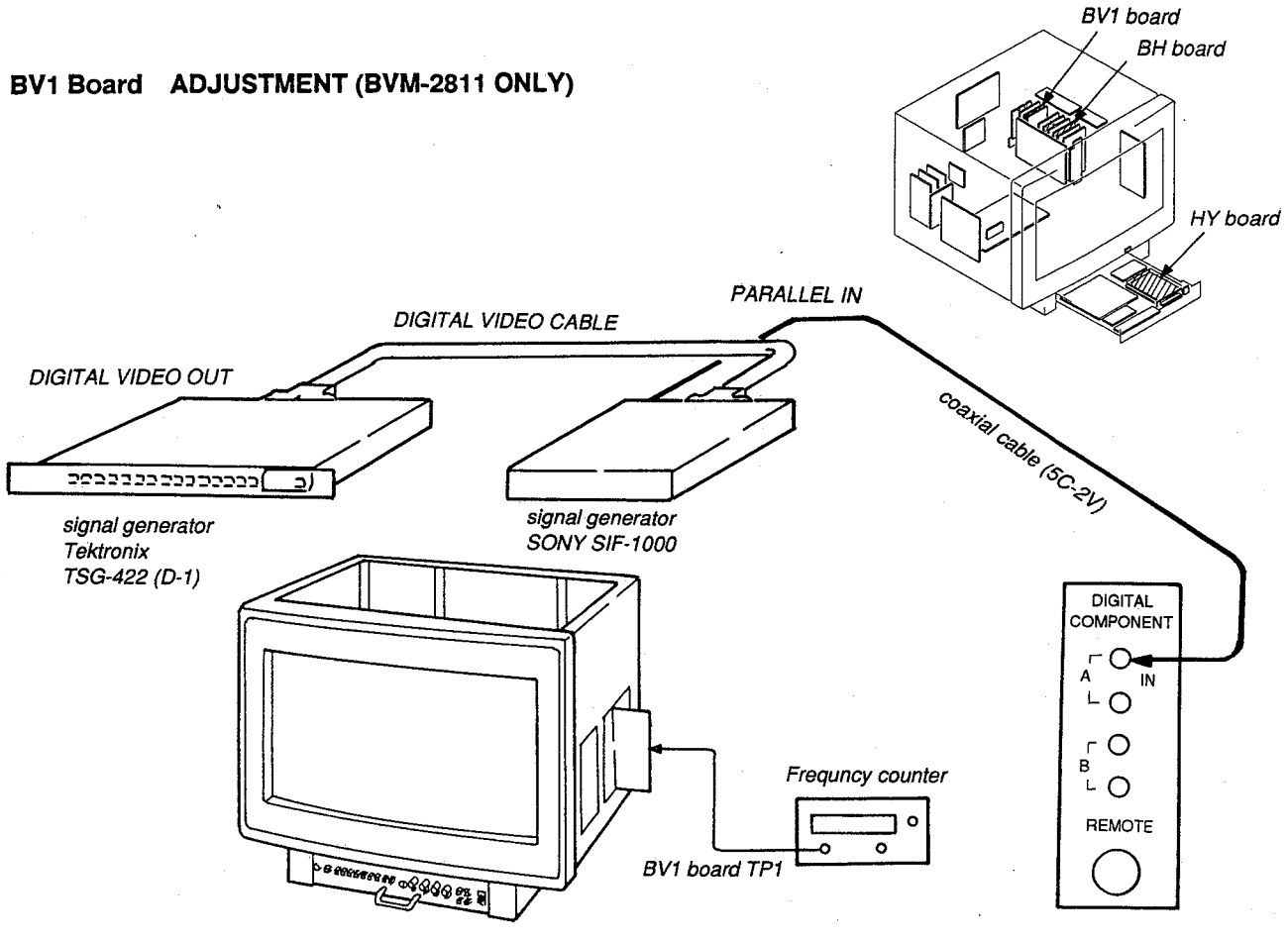
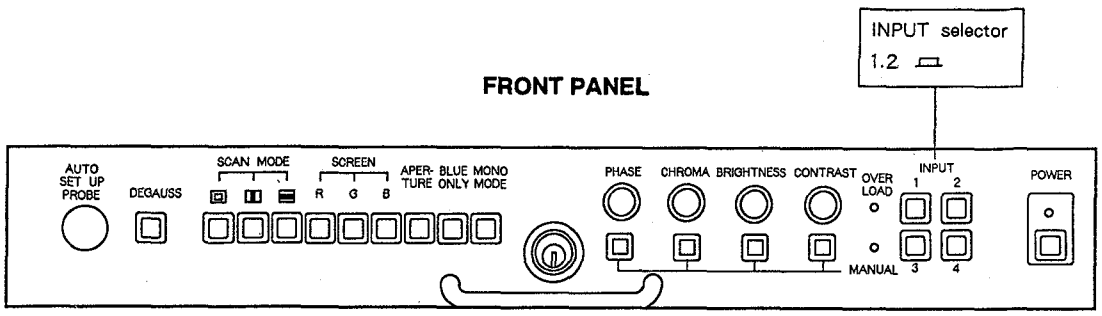


Fig. 37-1.

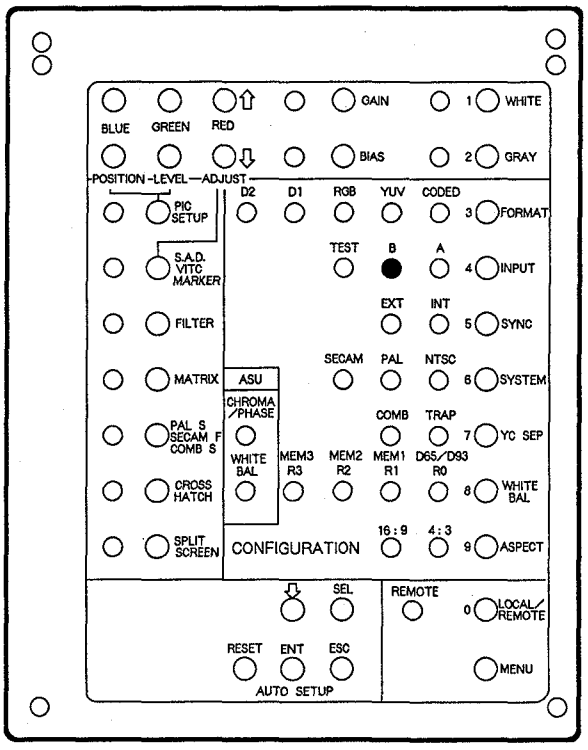
27 MHz CLOCK Adjustment

1. Disconnect the signal connected to digital input terminal.
   - INPUT selector (FRONT PANEL) 1
   - FORMAT button (SUB CONTROL PANEL) D1
   - COLOR STANDARD selector (BV2 BOARD S2) ..... LOWER
2. Connect a Frequency counter to TP1 on the BV1 board.
3. Adjust RV101 on the BV1 board for 27 MHz.
4. Select input to 2ch.
   - INPUT selector (FRONT PANEL) 2
   - INPUT button (SUB CONTROL PANEL)..... B
5. Adjust RV201 on the BV1 board for 27 MHz.

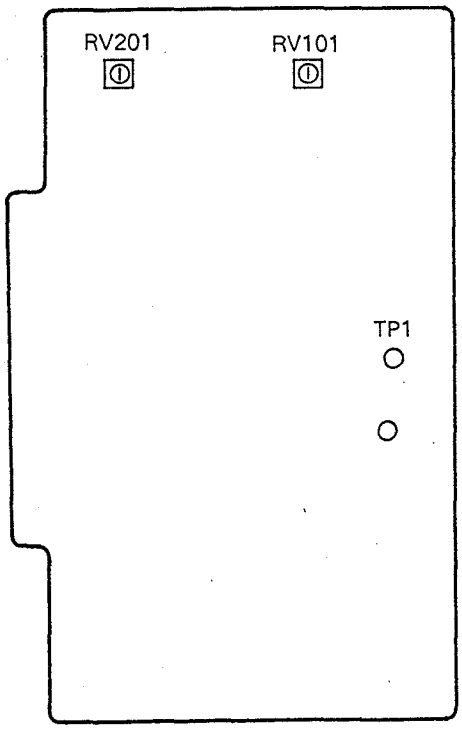
FRONT PANEL



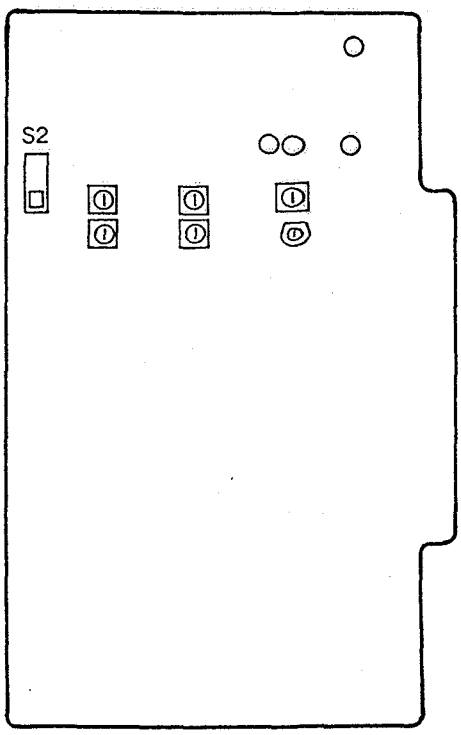
SUB CONTROL PANEL (HY board)



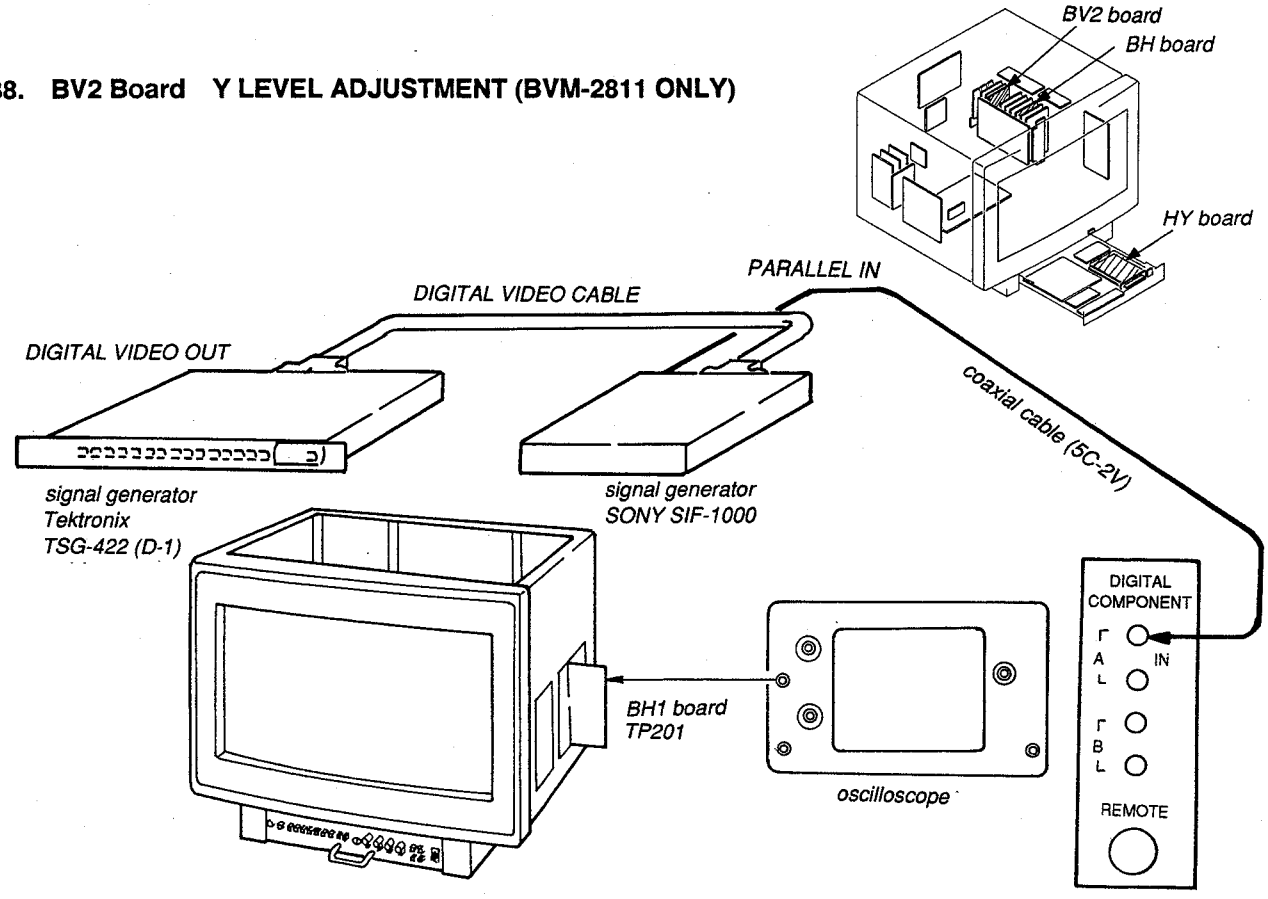
BV1 board



BV2 board



38. BV2 Board Y LEVEL ADJUSTMENT (BVM-2811 ONLY)



1. Receive color-bar signal (100/0/100).
   - FORMAT button (SUB CONTROL PANEL) ····· D1
   - COLOR STANDARD selector (BV2 BOARD S2) ····· LOWER
2. Connect an oscilloscope to TP201 on the BH board.
3. Adjust with RV301 on the BV2 board so that the levels of A and B become equivalent as shown in Fig. 38-1.

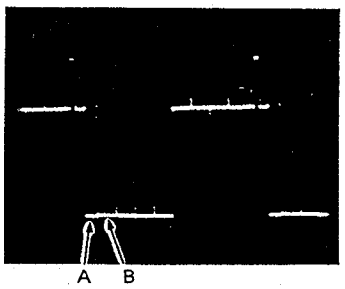
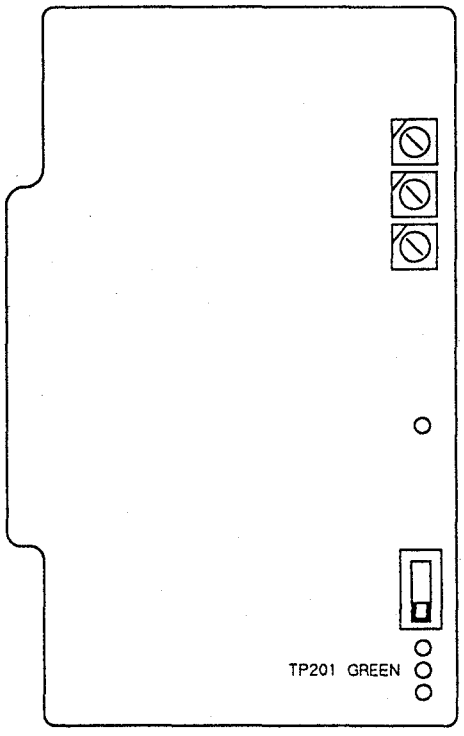
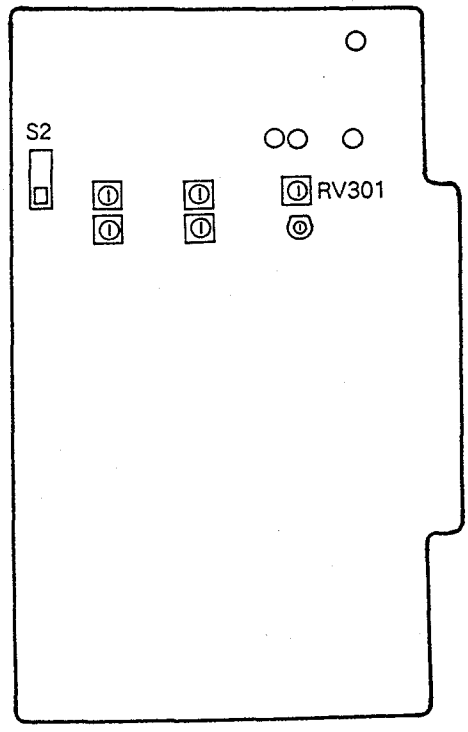


Fig. 38-1.

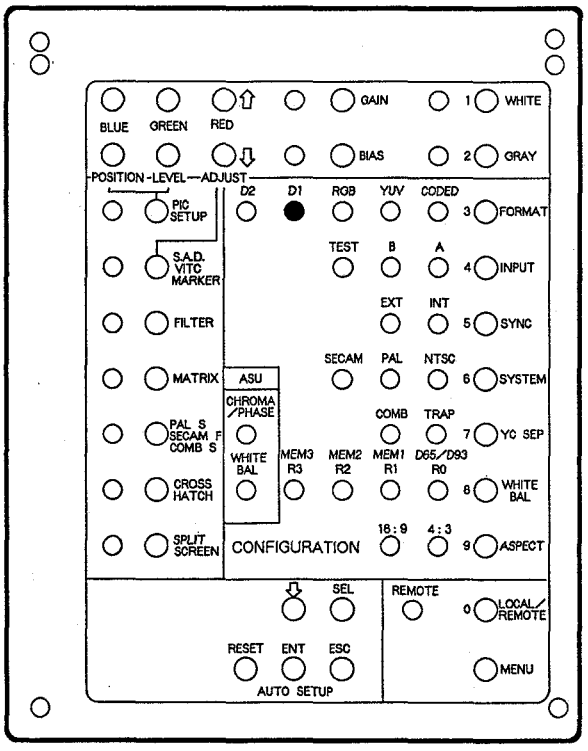
BH board



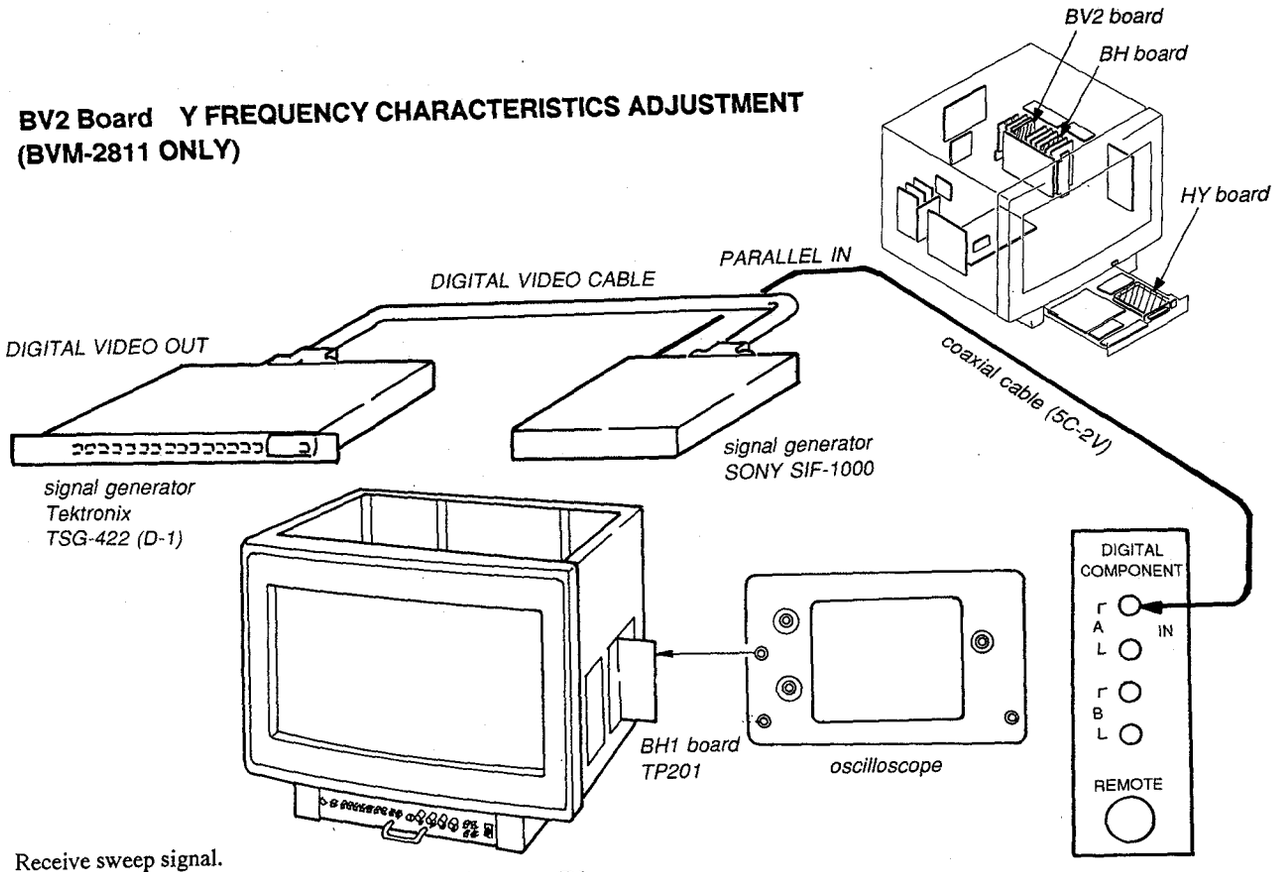
BV2 board



SUB CONTROL PANEL (HY board)



39. BV2 Board Y FREQUENCY CHARACTERISTICS ADJUSTMENT (BVM-2811 ONLY)



1. Receive sweep signal.
   - FORMAT button (SUB CONTROL PANEL) D1
   - COLOR STANDARD selector (BV2 BOARD S2) ..... LOWER
2. Connect an oscilloscope to TP201 on the BH board.
3. Adjust with CV301 on the BV2 board so that the output waveform of 0 to 5 MHz range becomes flat as shown in Fig. 39-1.

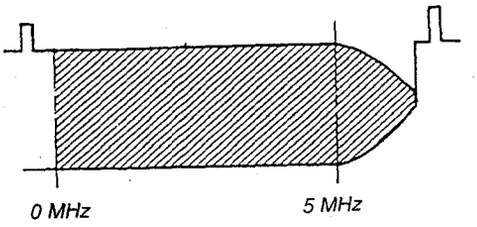
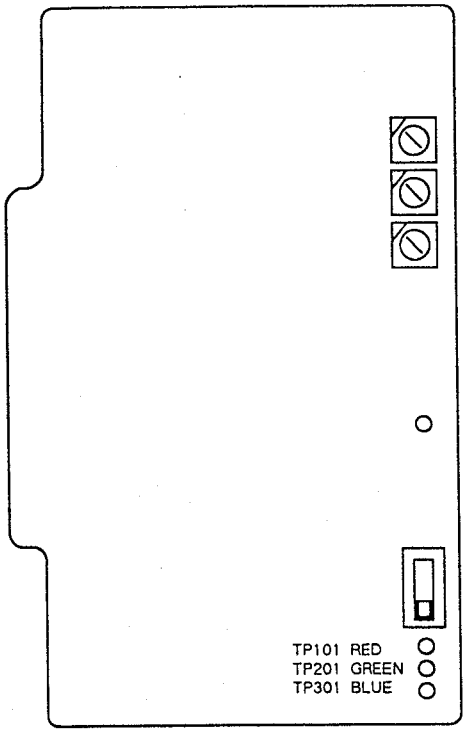
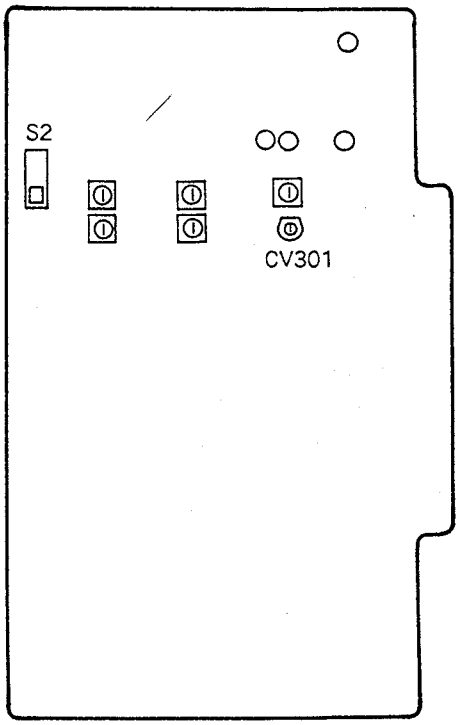


Fig. 39-1.

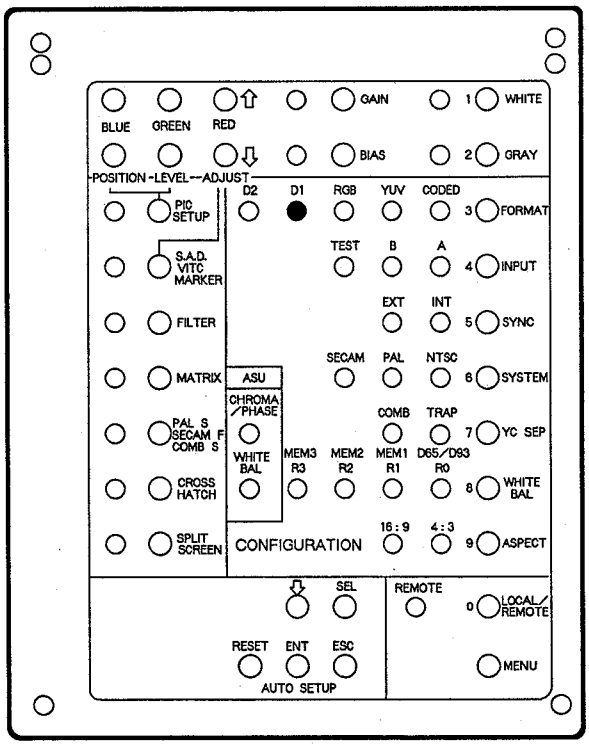
BH board



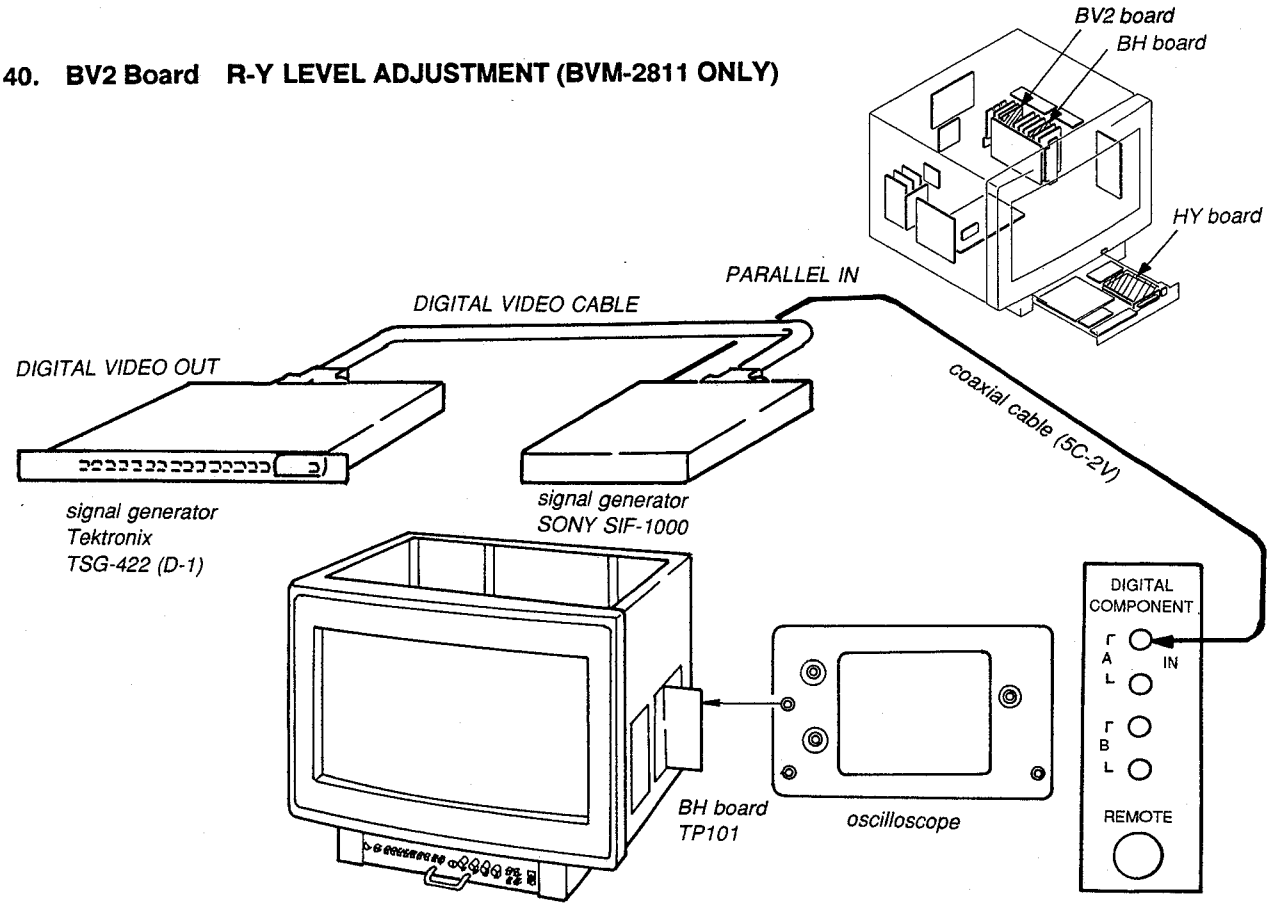
BV2 board



SUB CONTROL PANEL (HY board)



40. BV2 Board R-Y LEVEL ADJUSTMENT (BVM-2811 ONLY)



1. Receive color-bar signal (100/0/100).
   - FORMAT button (SUB CONTROL PANEL) ····· D1
   - COLOR STANDARD selector (BV2 BOARD S2) ····· LOWER
2. Connect an oscilloscope to TP101 on the BH board.
3. Adjust with RV101 on the BV2 board so that it becomes as shown in Fig. 40-1.

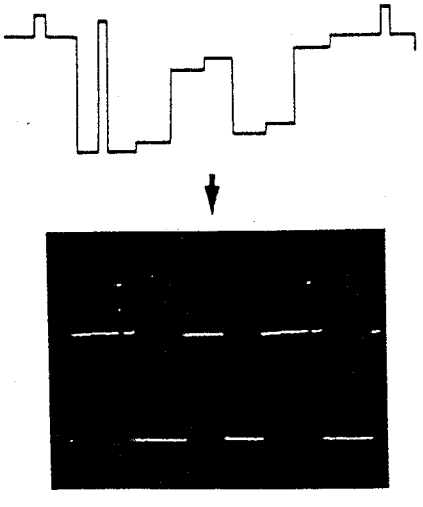
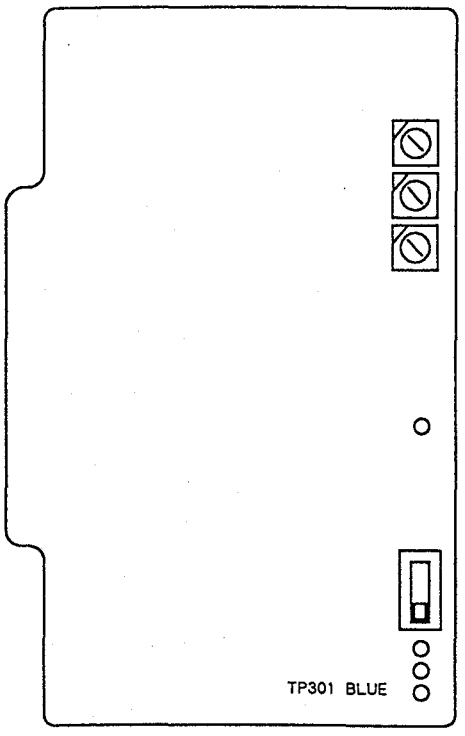
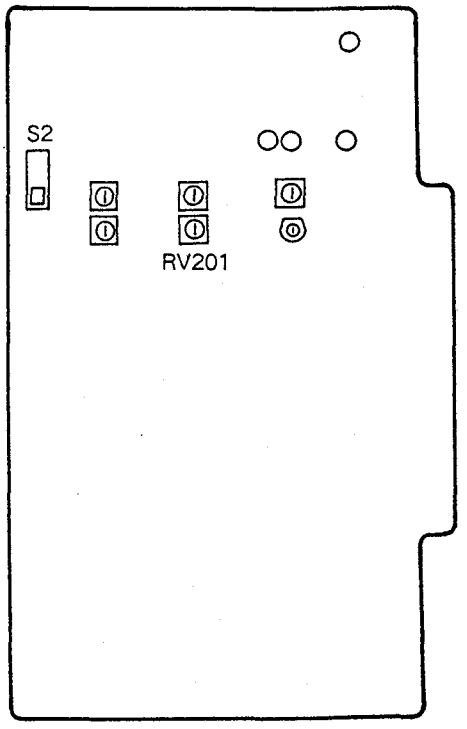


Fig. 40-1.

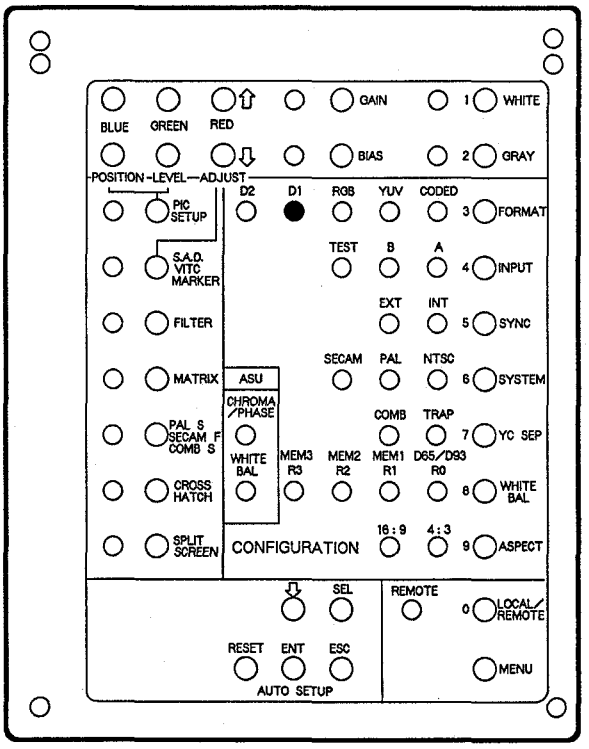
BH board



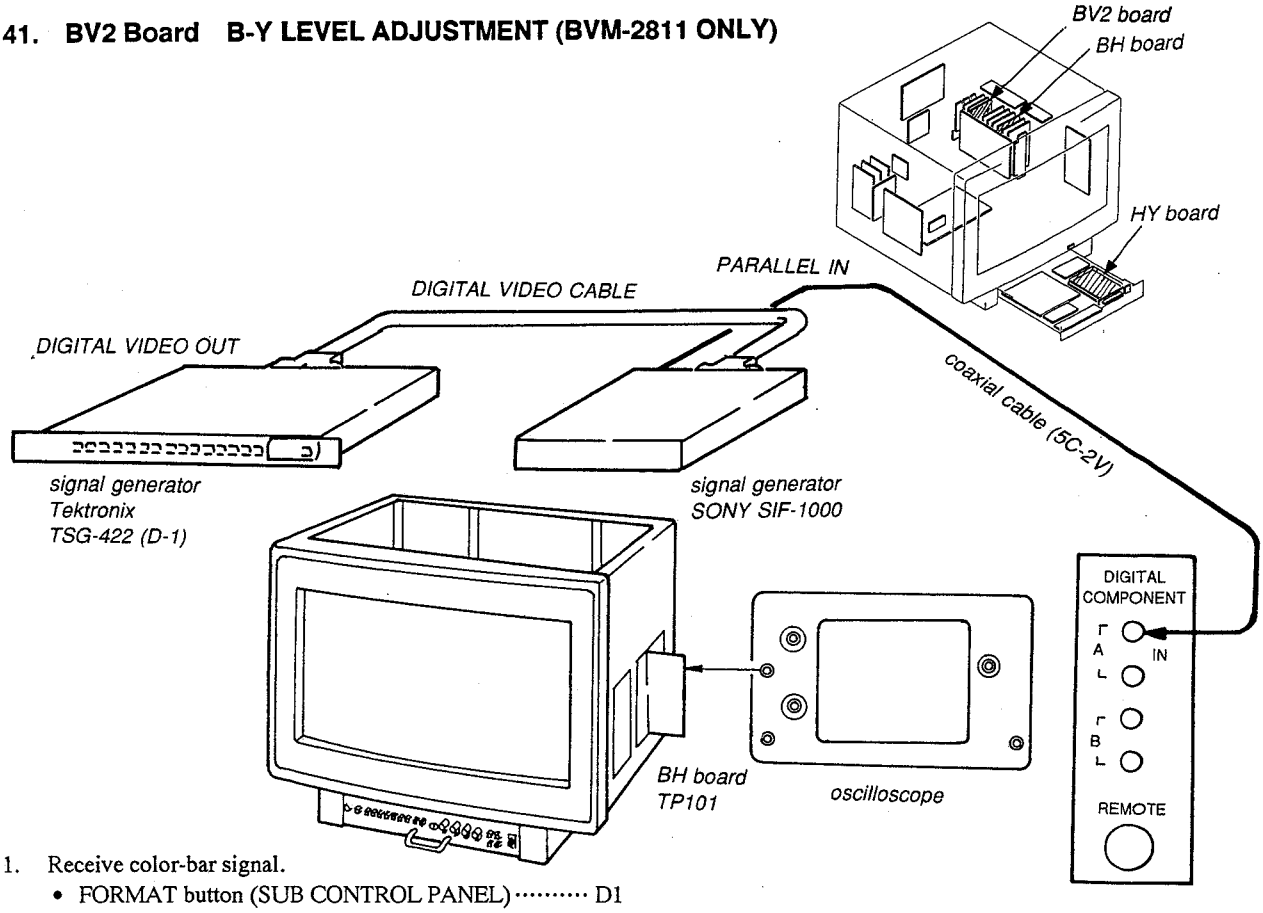
BV2 board



SUB CONTROL PANEL (HY board)



41. BV2 Board B-Y LEVEL ADJUSTMENT (BVM-2811 ONLY)



1. Receive color-bar signal.
   - FORMAT button (SUB CONTROL PANEL) ····· D1
   - COLOR STANDARD selector (BV2 BOARD S2) ····· LOWER
2. Connect an oscilloscope to TP301 on the BH board.
3. Adjust with RV201 on the BV2 board so that it becomes as shown in Fig. 41-1.

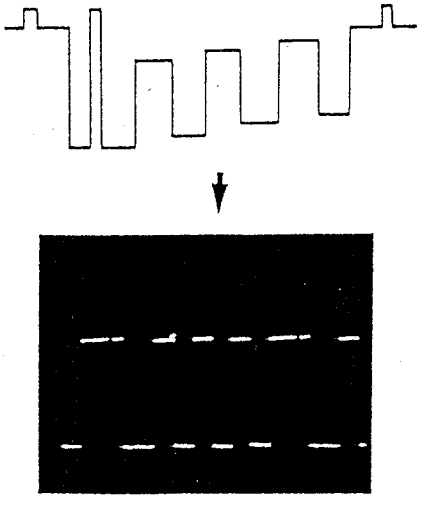
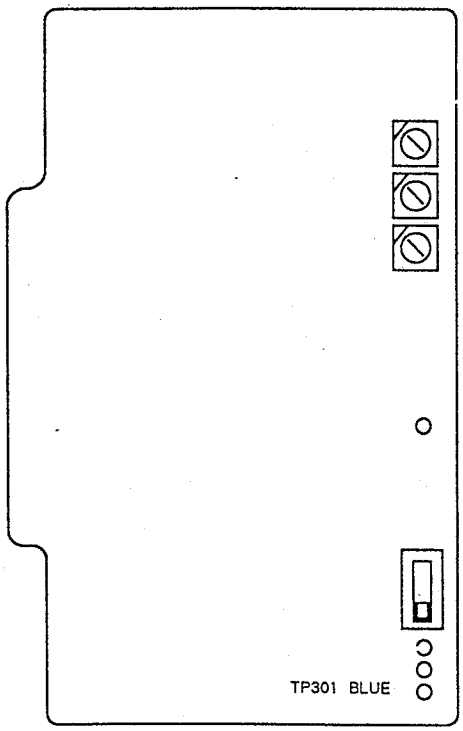
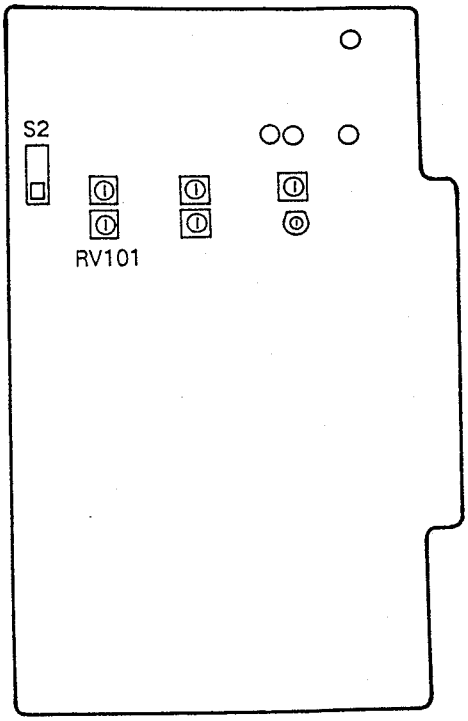


Fig. 41-1.

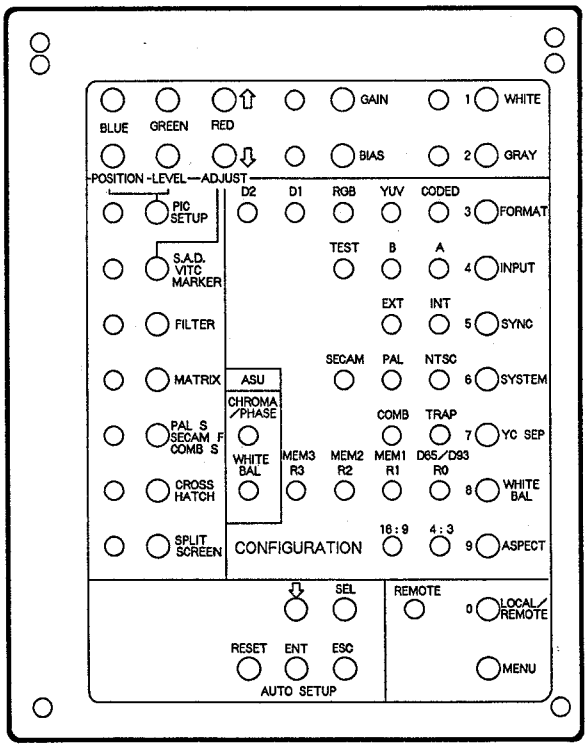
BH board



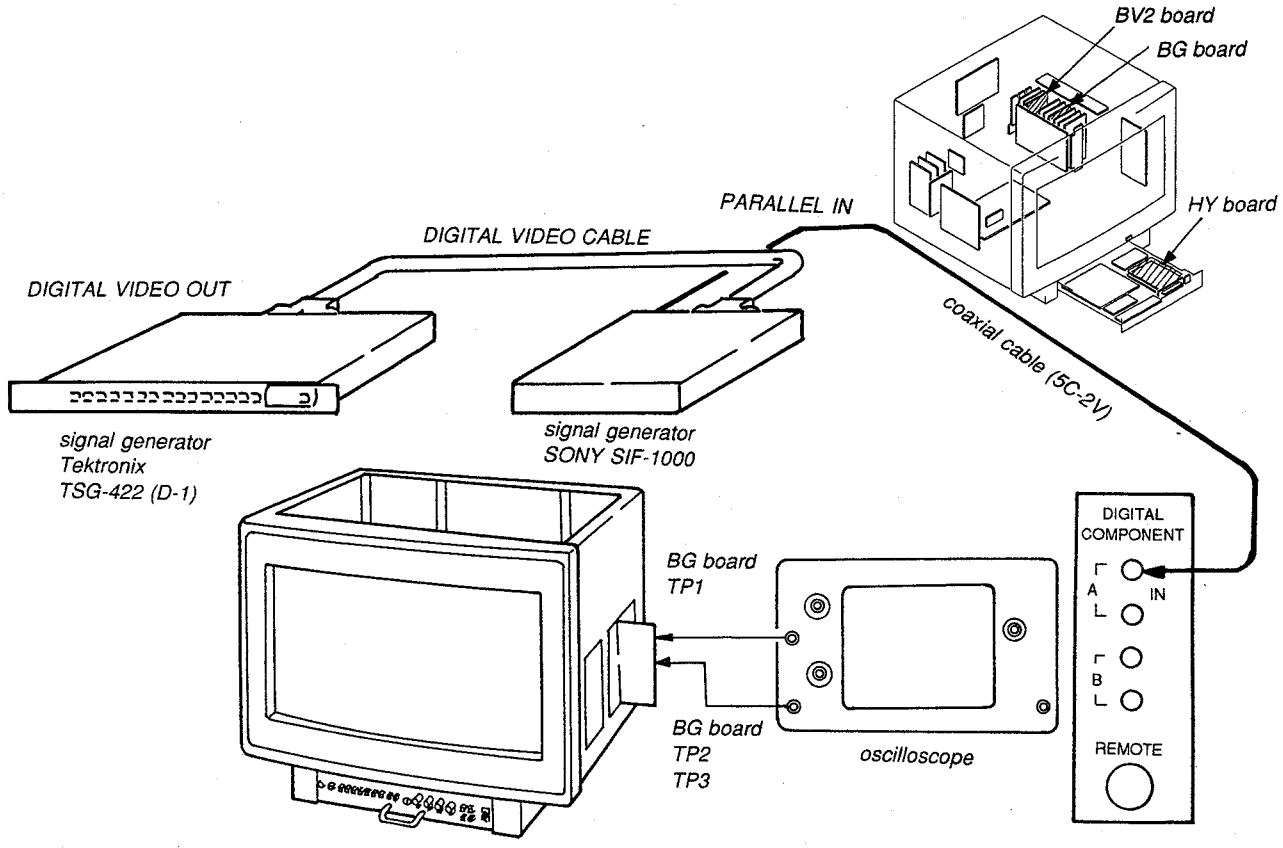
BV2 board



SUB CONTROL PANEL (HY board)



42. BV2 Board Y-(R-Y) [Y-(B-Y)] DELAY TIME ADJUSTMENT (BVM-2811 ONLY)



1. Receive color-bar signal.
   - FORMAT button (SUB CONTROL PANEL) ····· D1
   - COLOR STANDARD selector (BV2 BOARD S2) ····· LOWER
2. Connect CH1 probe of oscilloscope to TP1 on the BG board and CH2 probe to TP2 (TP3) on the BG board.
3. Adjust the respective positions of oscilloscope so that the waveform of CH1 becomes a=a' and the of CH2 becomes b=b' against the center scale as shown in Fig. 42-1.
4. Enlarge a–a' and b–b' sections in Fig. 42-1.
5. Adjust with RV102 (RV202) on the BV2 board so that the intersecting point of waveforms CH1 and CH2 becomes on the center scale.

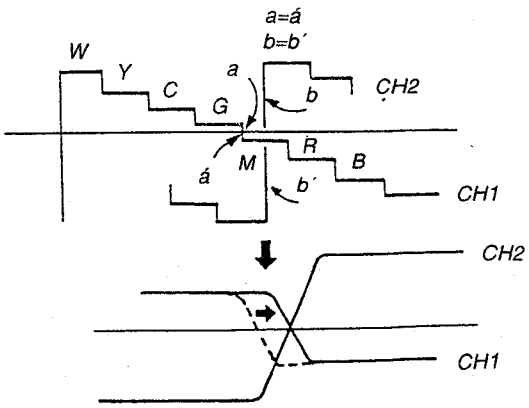
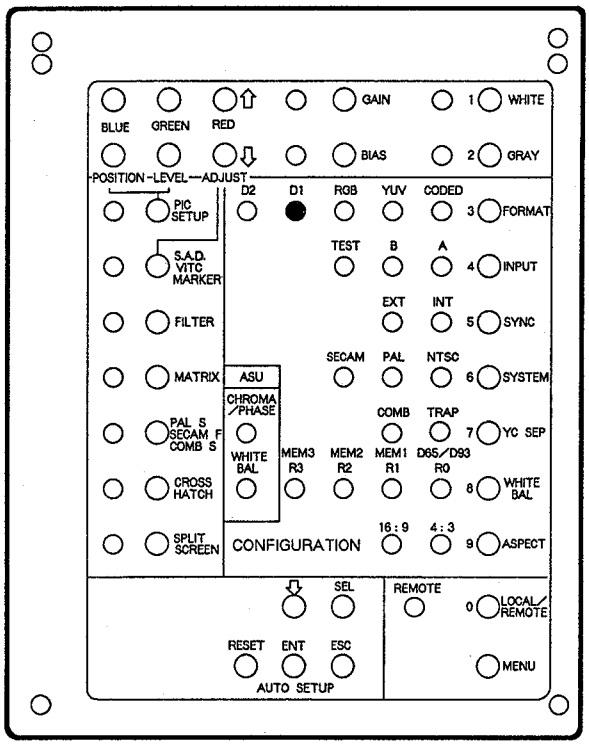
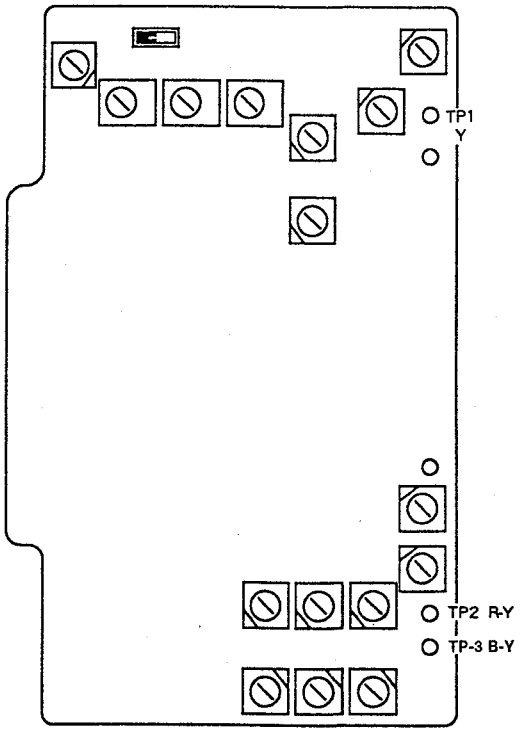


Fig. 42-1.

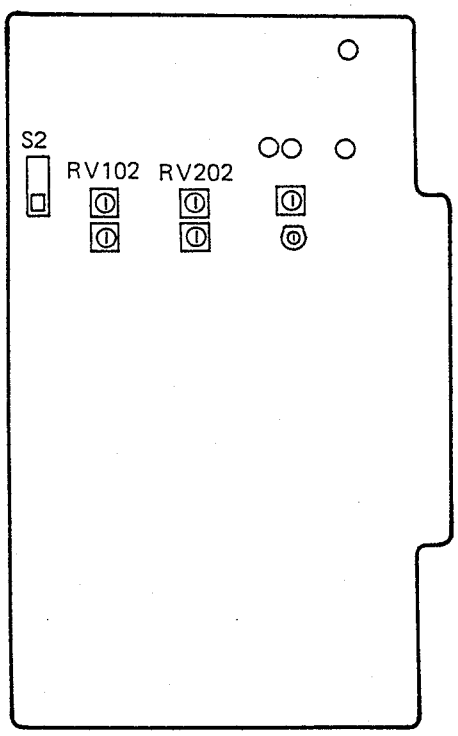
SUB CONTROL PANEL (HY board)



BG board

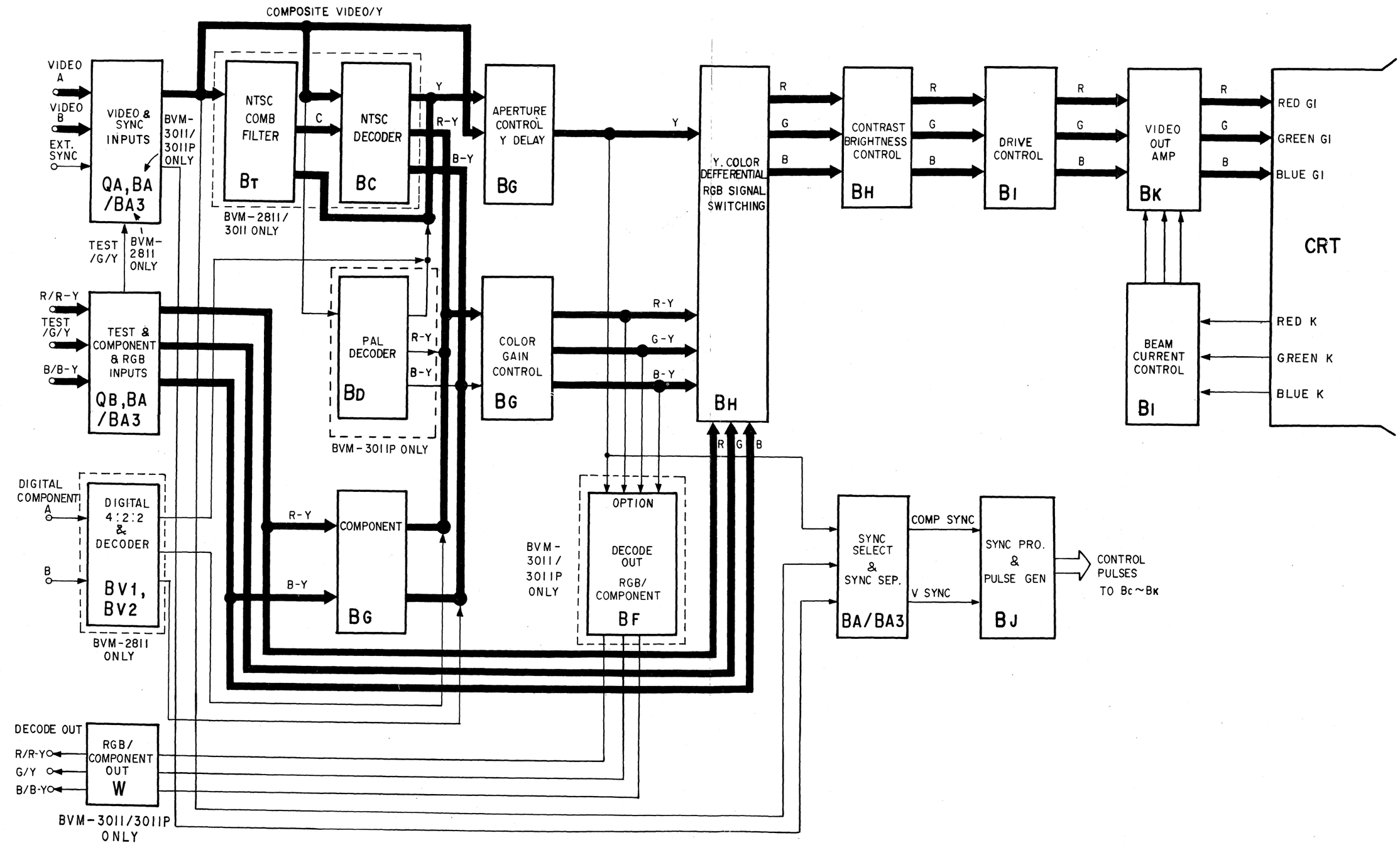


BV2 board

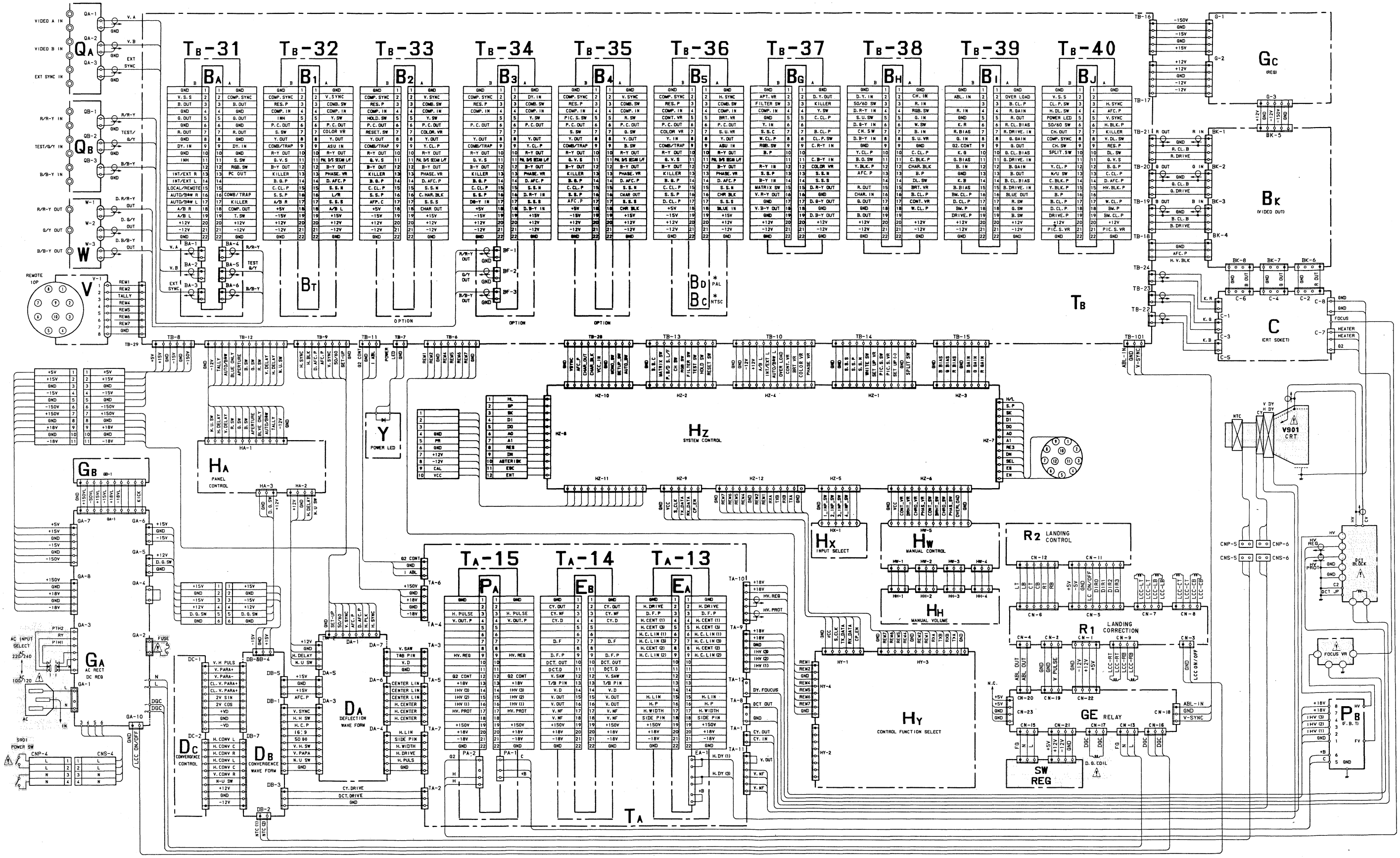


SECTION 5
DIAGRAMS

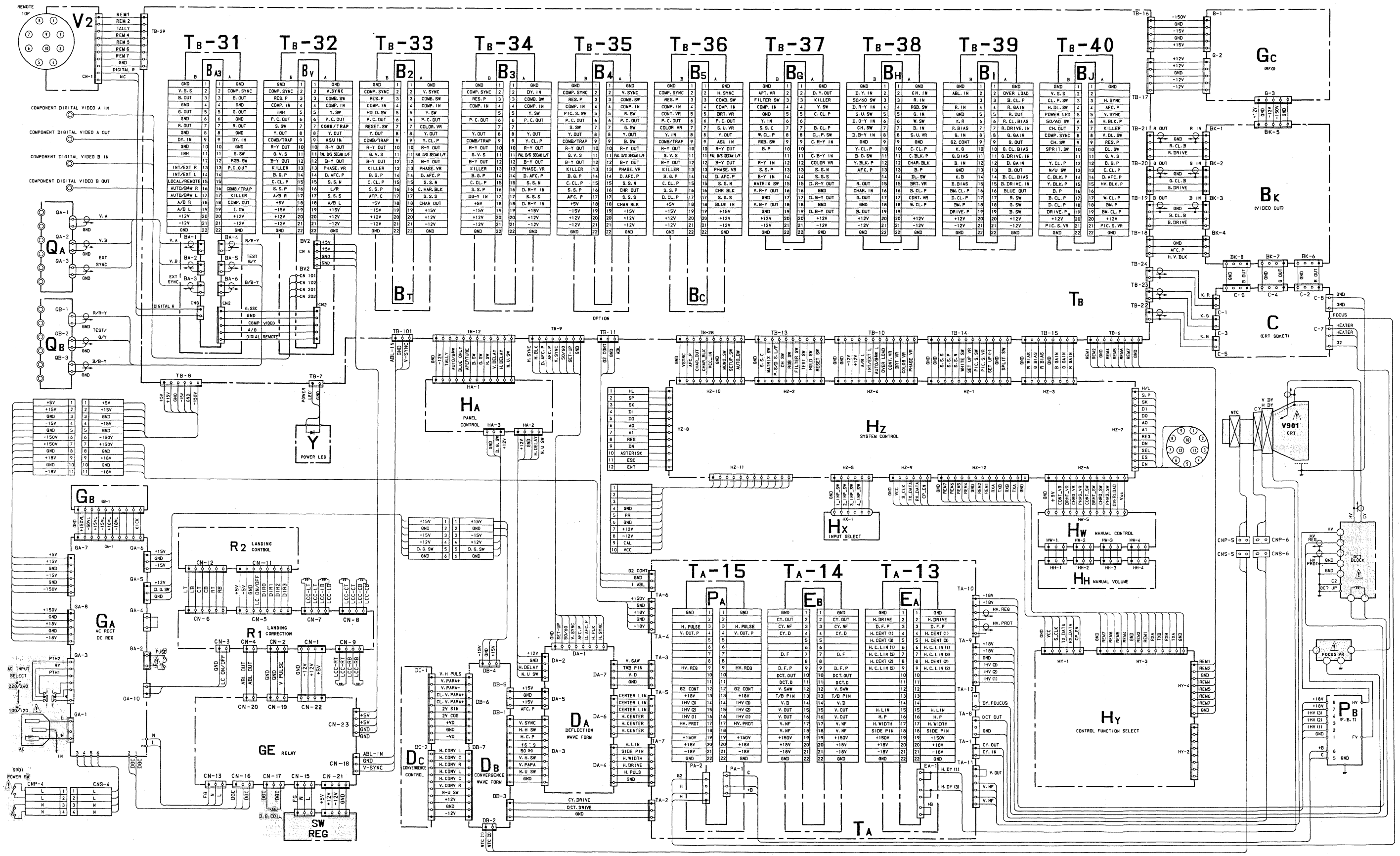
5-1. BLOCK DIAGRAM
SIGNAL PROCESSING BLOCK DIAGRAM



5-2. FRAME WIRING DIAGRAM (BVM-3011/3011P ONLY)



5-2. FRAME WIRING DIAGRAM (BVM-2811 ONLY)



5-5 5-6

5-3. 回路図,プリント図

⚠および ▒ 印の部品は,安全性を維持するために,重要な部品です。従って交換時は,必ず指定の部品を使用して下さい。

- ケミコンを除くコンデンサで耐圧50V以下のものは,その耐圧を省略。単位はすべてμF (pはpF)
  耐圧表示のないケミコンは50Vです。
- 抵抗で指示のないものは1/4W。単位はすべてΩ。
  ただしBT,DC,HY及びHZ基板は1/10Wです。
  チップ抵抗で指示のないものは1/10W。
- 可変抵抗と半固定抵抗で,B特性の表示は省略。
- ▭ 印は不燃性抵抗。
- ⏚: シャーシ上にある ⏚ の印に直接接続する。
- △ 印は内蔵部品。
- ▭ は,パネル表示名称及び調整名称。
- 半固定抵抗及び可変抵抗器の特性カーブ(B)は省略。
- ◪印の部品の定数は,X線量規制の規格を満足させるため,製造時セット毎に確認し決定したものです。
  万一,この部品を交換する場合は,セットに付いている部品と同一のものをご使用下さい。
  また,回路図上の◪ 印の部品を交換した場合は,指定された調整,確認が必要です。確認の結果が指示した値と合致しない場合は,☒ 印の部品を交換し,必ず指示した値と合致するように調整して下さい。
  (4-13 (J)〜4-18 (J)ページのR52, R53, R67, R68, R124, R126, R222, R227, R228, R239の確認方法を参照)

☒ マーク部品	◪ 印の部品
C59, IC3, R67, R68, R78, RV2 (GA基板)	+B MAX確認 (R67, R68) 4-13 (J)ページ
Q13, Q14, R52, R53 (GA基板) D5, D6, D7, D8, Q3, Q4, Q5, R4, R5, R19, R20, R21, R22 (GB基板)	+B プロテクター (R52, R53) 4-13 (J) ページ
D216, IC1, IC4, R123, R124, R125, R126, R136, R137, R138, R203, R204, RV1 (PA基板) DCTブロック	HVレギュレータ確認 (R124, R126) 4-18 (J)ページ
D205, D207, D215, IC2, R201, R202, R213, R214, R225, R226, R227, R228, R243, R245 (PA基板) DCTブロック	HVホールドタウン調整及び確認 (R227, R228) 4-16 (J)ページ
D205, D206, D215, IC2, R201, R202, R213, R214, R220, R221, R222, RF223, R224, R242 (PA基板) T1 (FBT), R1, R2, R5 (PB基板)	ビーム電流プロテクタ-1の確認 (R222) 4-13 (J)ページ
D204, D216, IC3, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247 (PA基板) T1 (FBT), R3, R4, R5, R6 (PB基板)	ビーム電流プロテクタ-2の確認 (R239) 4-14 (J)ページ

ー部品特性略称表ー

- 固定抵抗
  RN : 金属皮膜
  RC : ソリッド
  FPRD : 不燃性カーボン
  FUSE : 不燃性ヒューズ
  RS : 不燃性酸化金属皮膜
  RB : 不燃性セメント
  RW : 不燃性巻線
- マイクロインダクタ
  LF-8L : マイクロインダクタ
- コンデンサ
  TA : タンタル
  PS : スチロール
  PP : ポリプロピレン
  PT : マイラ
  MPS : メタライズドポリエステル
  MPP : メタライズドポリプロピレン
  ALB : バイポーラ
  ALT : 高温用
  ALR : ハイリップル
- ▭ は調整名称
- ▭V : B+ライン
- ▭V : B−ライン
  (実測値は異なる場合があります。)
- 波形は, カラーバー信号を入力し, 空きターミナルに75Ωのターミネーターを接続した時の値。
- 丸数字は波形表の番号。

スイッチ及びコントロールつまみの位置

フロントパネル

• INPUT セレクター	1	HX基板
• CONTRAST MANUAL スイッチ	PRESET	HW基板
• BRIGHTNESS MANUAL スイッチ	PRESET	
• CHROMA MANUAL スイッチ	PRESET	
• PHASE MANUAL スイッチ	PRESET	
• SCAN MODE スイッチ		HA基板
▣ UNDER SCAN	NOR	
▮ H. DELAY	NOR	
▬ V. DELAY	NOR	
• SCREEN スイッチ (R)	NOR	
• SCREEN スイッチ (G)	NOR	
• SCREEN スイッチ (B)	NOR	
• APT スイッチ	NOR	
• BLUE ONLYスイッチ	NOR	
• MODE セレクター	AUTO	

サブコントロールパネル

• FORMAT ボタン	CODED	HY基板
• INPUT ボタン	A	
• SYNC ボタン	INT	
• SYSTEM ボタン	NTSC	
• WHITE BALANCE ボタン	COMB	
• YC SEP ボタン	D65/93	
• ASPECT ボタン	4 : 3	
• PIC SETUP ボタン	OFF	
• SAD/VITC/MARKER ボタン	OFF	
• FILTER ボタン	OFF	
• MATRIX ボタン	OFF	
• PAL S/SECAM F/COMB S ボタン	OFF	
• CROSS HATCH ボタン	OFF	
• SPLIT SCREEN ボタン	OFF	
• WHITE ボタン	OFF	
• GRAY ボタン	OFF	
• AFC ボタン	2m sec	DA基板

Note :

- ▒ : Pattern from the side which enables seeing.
- ▓ : Pattern of the rear side.

5-3. MOUNTING AND SCHEMATIC DIAGRAMS

Note:

Note:
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une trame et par une marque ⚠ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

- All capacitors are in μF unless otherwise noted. p : μμF 50WV or less are not indicated except for electrolytics.
- All electrolytics are in 50V unless otherwise specified.
- All resistors are in ohms, 1/2W on the C board, 1/10W on the BA3, BT, BV1, BV2, DC, HY, and HZ boards and 1/4W on the rest of the boards unless otherwise specified.
  kΩ=1000Ω, MΩ=1000kΩ
- Chips resistors are 1/10W unless otherwise specified.
- : nonflammable resistor.
- : internal component.
- : direct connection to points marked ⏚ on the chassis.
- : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by ⊠ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
  When replacing components identified by ◪, make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⊠ and repeat the adjustment until the specified value is achieved.
  Refer to R52, R53, R67, R68, R124, R126, R222, R227, R228 and R239.
  Adjust on page 4-13 (E) ~ 4-18 (E)
  When replacing the part in below table be sure to parform the related adjustment.

Part replaced (◪)	Adjustment (⊠)
C59, IC3, R67, R68, R78, RV2...(GA board)	B+MAX (R67, R68) Page 4-13 (E).
Q13, Q14, R52, R53 (GA board) D5, D6, D7, D8, Q3, Q4, Q5, R4, R5, R19, R20, R21, R22... (GB board)	B+PROTECTER (R52, R53) Page 4-13 (E).
D216, IC1, IC4, R123, R124, R125, R126, R136, R137, R138, R203, R204, RV1...(PA board) DCT BLOCK	HV REG (R124, R126) Page 4-18 (E).
D205, D207, D214, D215 IC2, R201, R202, R213, R214, R225, R226, R227, R228, R229, R230, R243, R245.... (PA board) DCT BLOCK	HV HOLD DOWN (R227, R228) Page 4-16 (E).
D205, D206, D215, IC2, R201, R202, R213, R214, R220, R221, R222, R223, R224, R242... (PA board) T1 (FBT), R1, R2, R5.... (PB board)	BEAM CURRENT PROTECTOR-1 (R222) Page 4-13 (E)~ 4-16 (E)
D204, D216, IC3, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247...(PA baord) T1 (FBT), R3, R4, R5, R6 (PB board)	BEAM CURRENT PROTECTOR-2 (R239) Page 4-14 (E)~ 4-15 (E)

- : adjustment for repair.
- : B+ line.
- : B– line.
- Circled numbers are waveform references.
- Waveforms are taken with a color-bar signal input and with a 75Ω terminator connected to an open terminal.

Reference Information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE WIREWOUND
	: RB	NONFLAMMABLE CEMENT
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: AIR	HIGH RIPPLE

- Switches and controls are set as follows unless other wise noted.

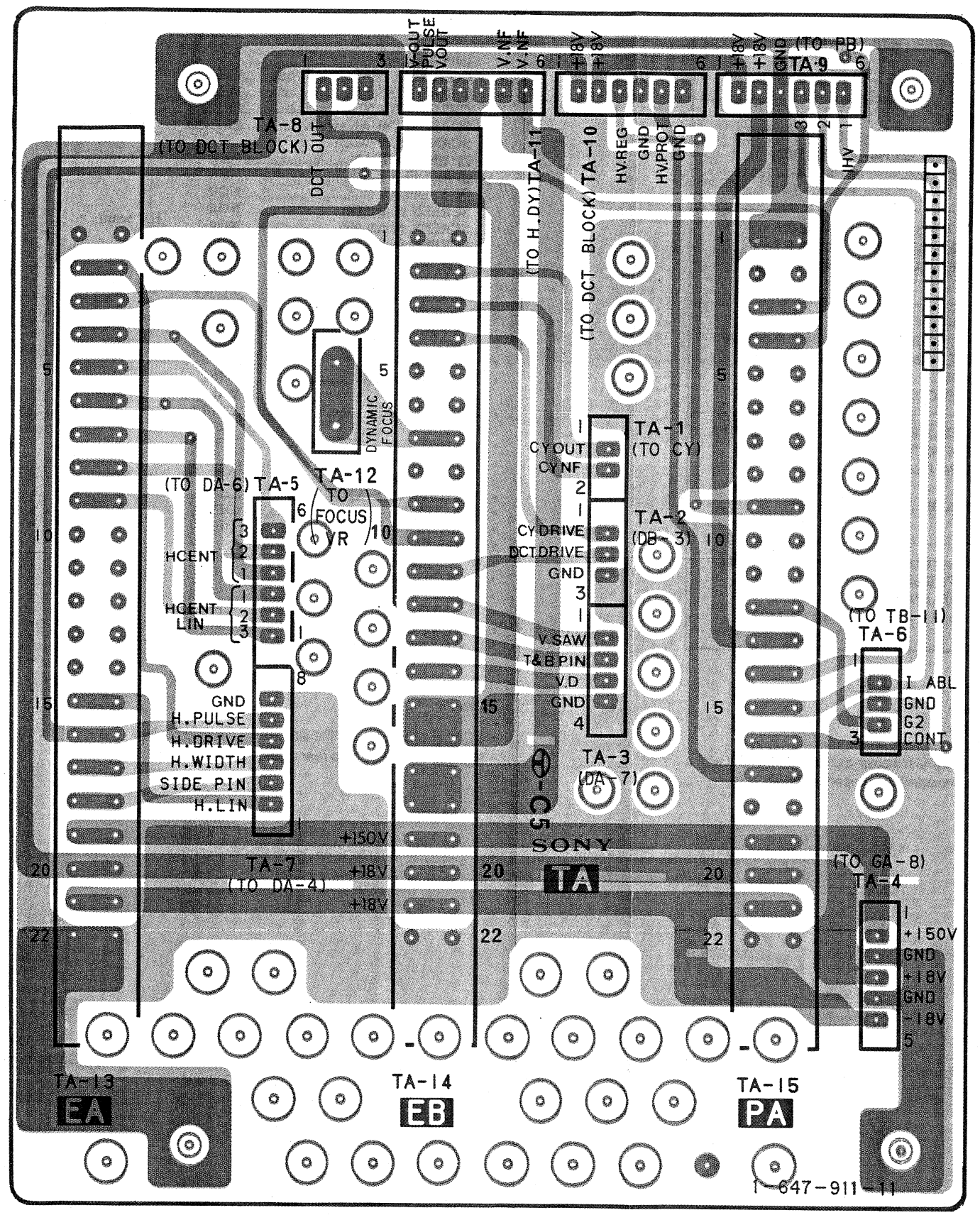
FRONT PANEL
- INPUT selector ..... 1 — HX board
- CONTRAST MANUAL switch ..... PRESET
- BRIGHTNESS MANUAL switch ... PRESET
- CHROMA MANUAL switch ..... PRESET
- PHASE MANUAL switch ..... PRESET — HW board
- SCAN MODE switch
  - UNDER SCAN ..... NOR
  - H. DELAY ..... NOR
  - V. DELAY ..... NOR
- SCREEN switch (R) ..... NOR
- SCREEN switch (G) ..... NOR
- SCREEN switch (B) ..... NOR
- APT switch ..... NOR
- BLUE ONLYswitch ..... NOR
- MODE selector ..... AUTO — HA board

SUB CONTROL PANEL
- FORMAT button ..... CODED
- INPUT button ..... A
- SYNC button ..... INT
- COLOR SYSTEM button ..... NTSC PAL
- YC SEP button ..... COMB TRAP
- WHITE BALANCE button ..... COMB
- ASPECT button ..... 4 : 3
- PIC SETUP button ..... OFF — HY board
- SAD/VITC/MARKERbutton ..... OFF
- FILTER button ..... OFF
- MATRIX button ..... OFF
- PAL S/SECAM F/COMB S button ..... OFF
- CROSS HATCH button ..... OFF
- SPLIT SCREEN button ..... OFF
- WHITE button ..... OFF
- GRAY button ..... OFF
- AFC switch ..... 2m sec — DA board

Note :

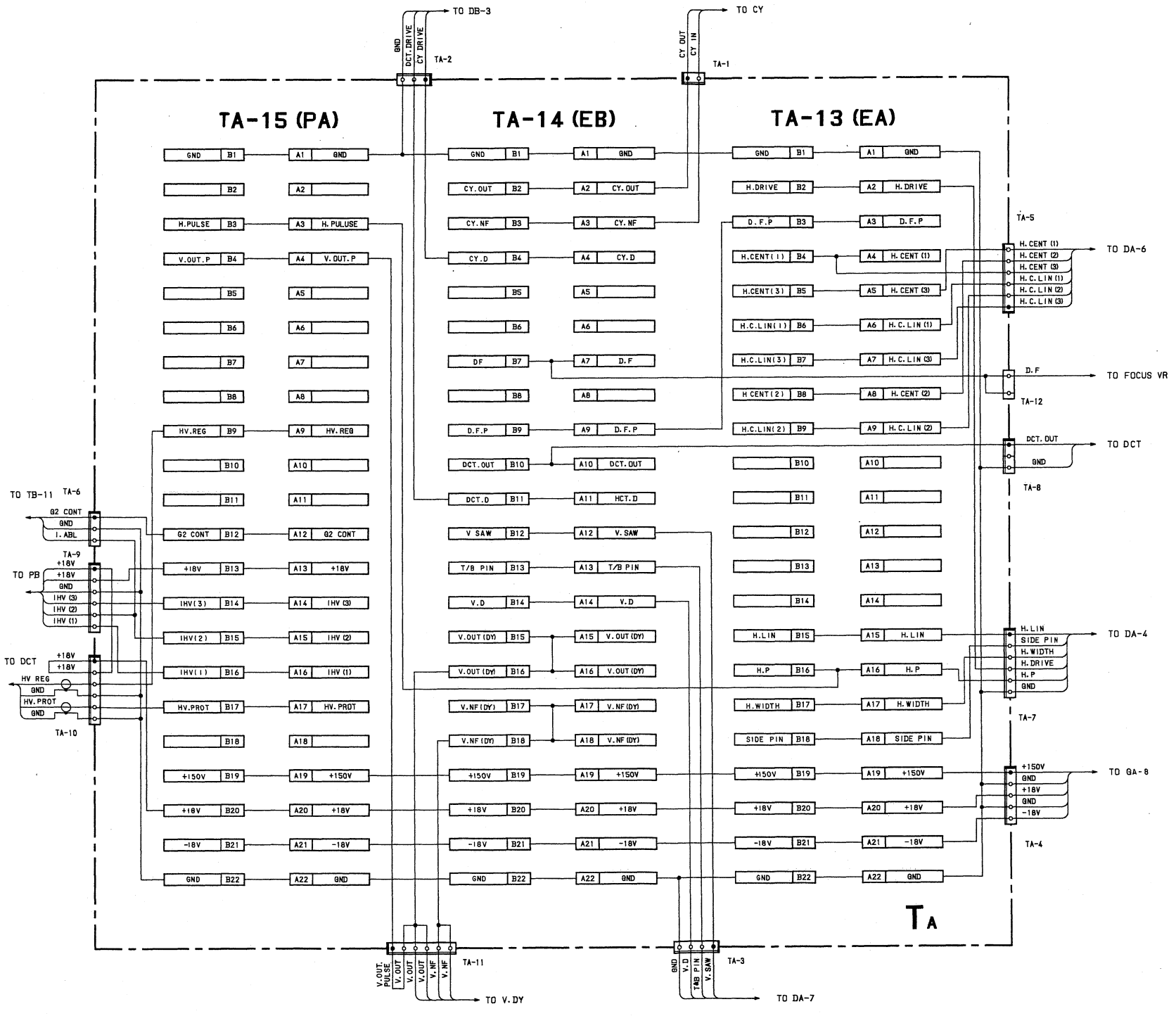
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

TA board (MOTHER BOARD)

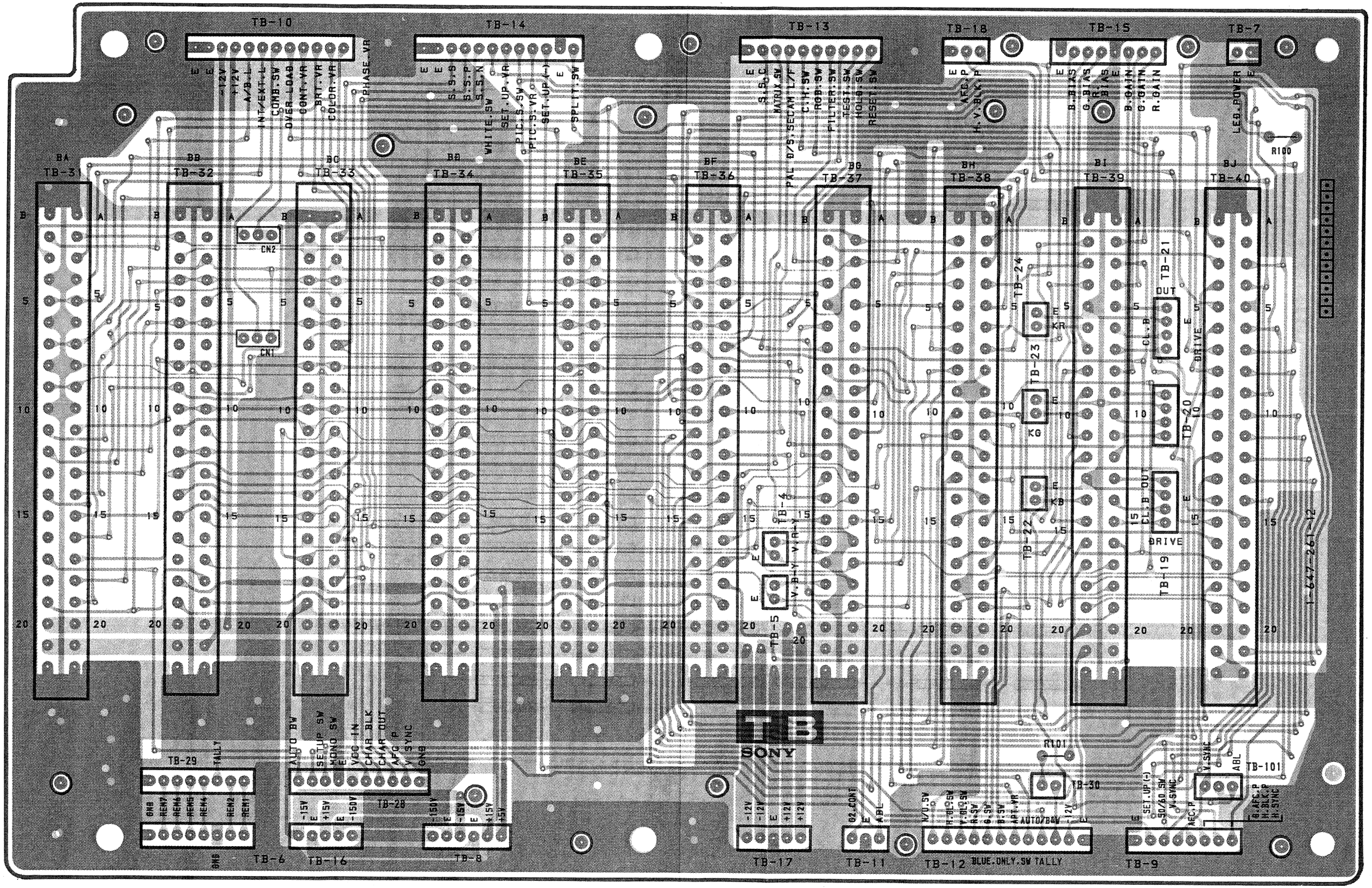


- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

TA board (MOTHER BOARD)

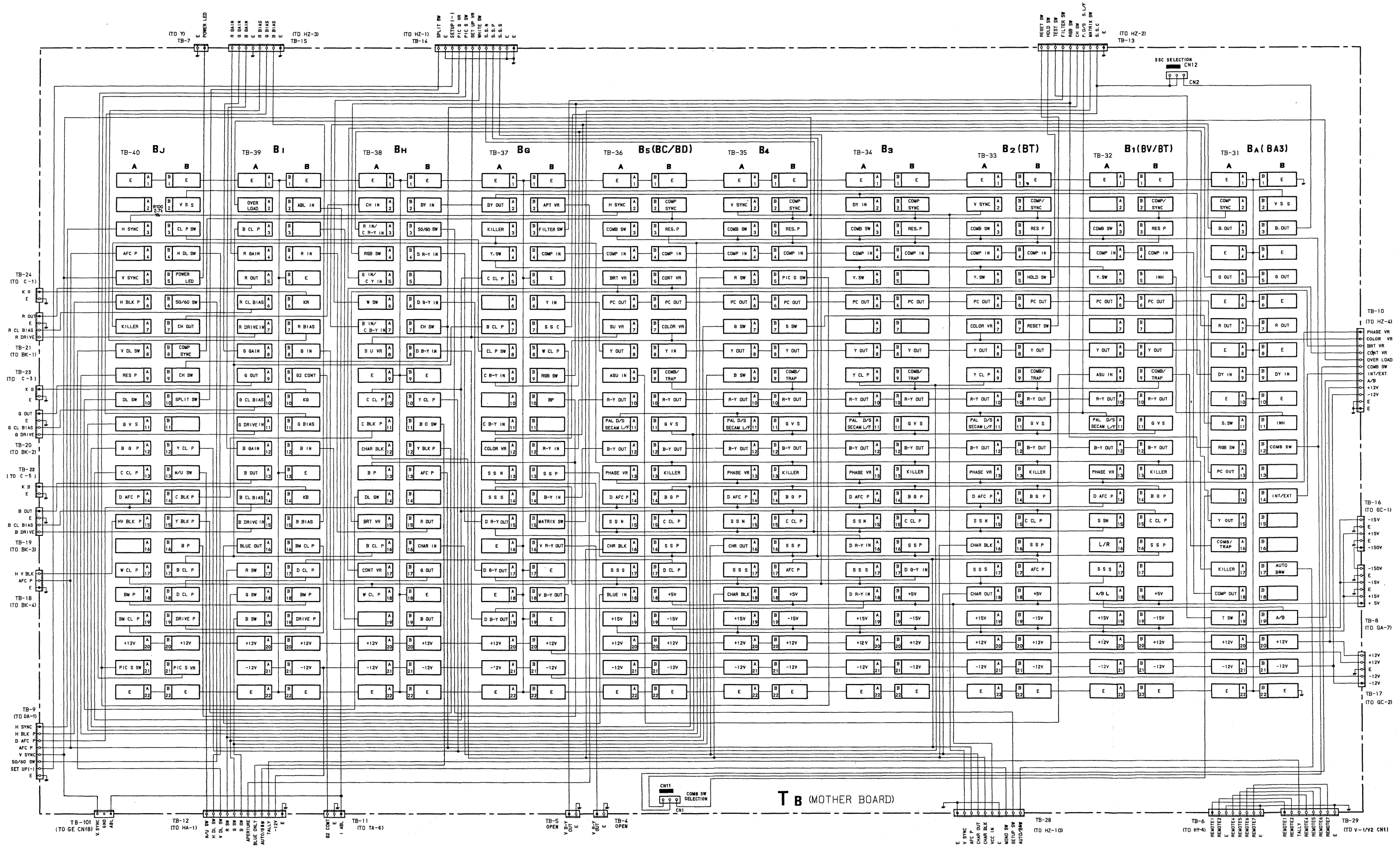


TB board (MOTHER BOARD)



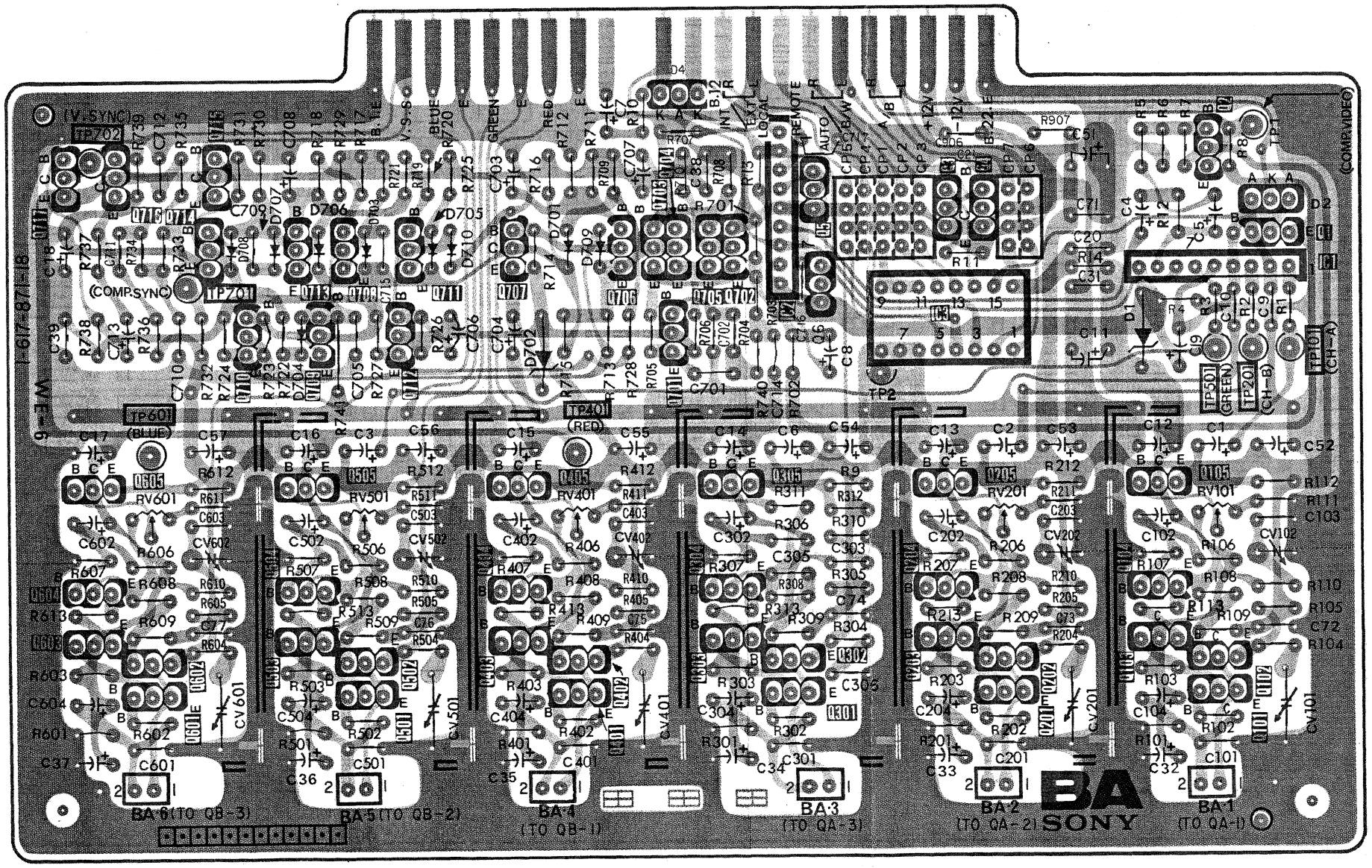
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

TB board (MOTHER BOARD)



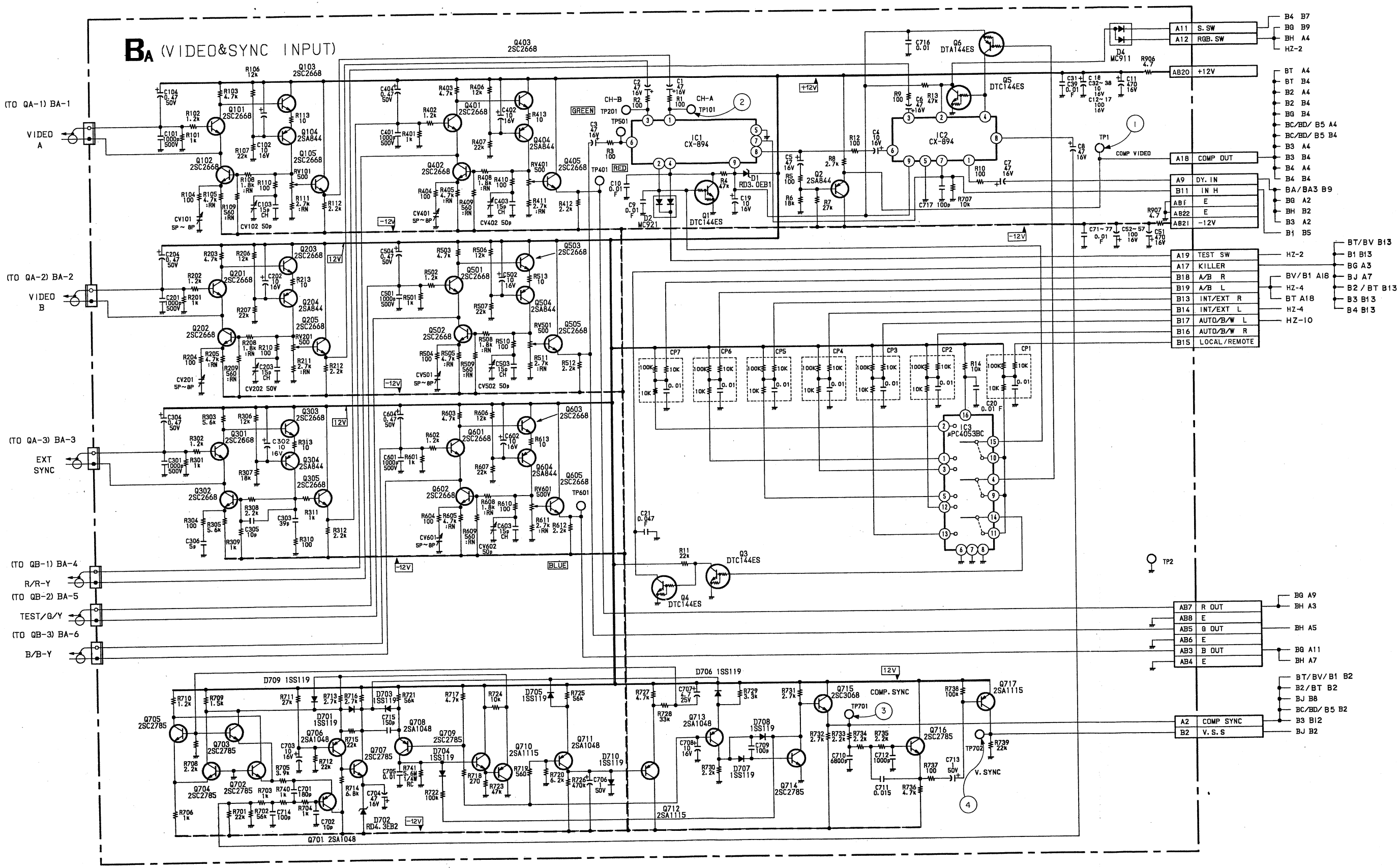
BA board (SYNC SELECT & SYNC SEP, HOOK UP)
(BVM-3011/3011P ONLY)

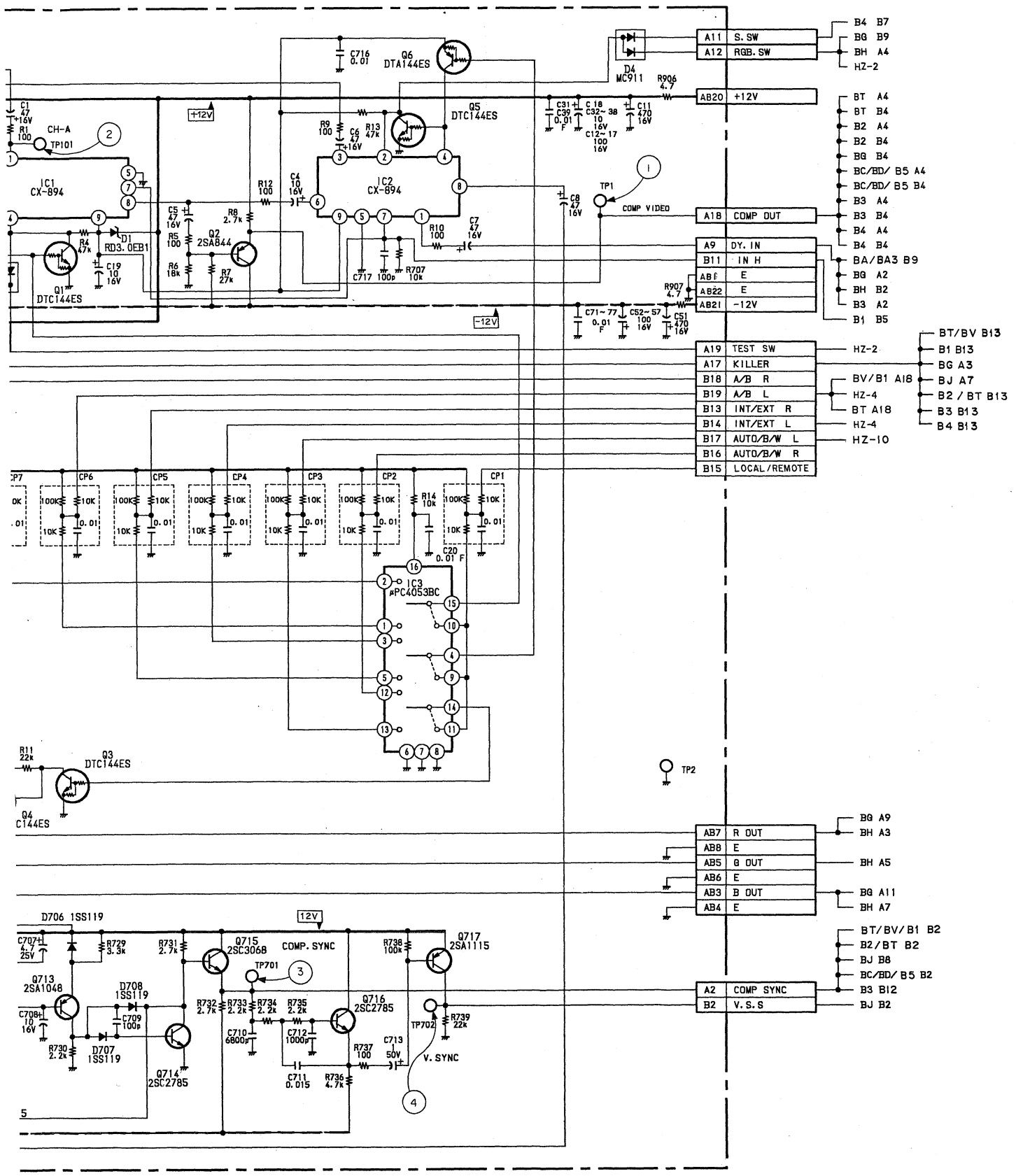
IC	2	3	1
Q	717 716 715 714 713 708 711 707 706 703 705 702 704 701 712 710 709 605 604 603 602 601 505 504 503 502 501 405 404 403 402 401 305 304 303 302 301 5 6	3 4 205 204 203 202 201	2 1 105 104 103 102 101
D	708 707 706 704 703 705 710 101 709 702 4	1	2
TP ADJ	TP702 TP601 RV601 CV602 CV601 TP701 RV501 CV502 CV501 TR401 RV401 CV402 CV401	TP2 RV201 CV202 CV201	TP1 TP501 RV101 TP201 CV102 CV101 TP101



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

BA board (SYNC SELECT & SYNC SEP, HOOK UP)
(BVM-3011/3011P ONLY)

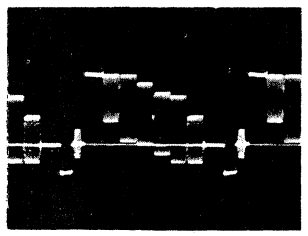




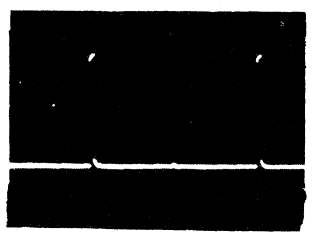
BA BOARD

IC1	CX894	INPUT SELECT
2	CX894	SYNC SELECT
3	UPD4053BC	LOCAL/REMOTE SW
Q1	DTC144ES	INPUT SELECT CONTROL
2	2SA844	BUFF
3	DTC144ES	KILLER
4	DTC144ES	KILLER
5	DTC144ES	SYNC SELECT CONTROL
6	DTA144ES	INT/EXT CONTROL
101	2SC2668	VIDEO A AMP
102	2SC2668	VIDEO A AMP
103	2SC2668	VIDEO A AMP
104	2SA844	VIDEO A AMP
105	2SC2668	VIDEO A AMP
201	2SC2668	VIDEO B AMP
202	2SC2668	VIDEO B AMP
203	2SC2668	VIDEO B AMP
204	2SA844	VIDEO B AMP
205	2SC2668	VIDEO B AMP
301	2SC2668	EXT SYNC AMP
302	2SC2668	EXT SYNC AMP
303	2SC2668	EXT SYNC AMP
304	2SA844	EXT SYNC AMP
305	2SC2668	EXT SYNC AMP
401	2SC2668	R-Y/R AMP
402	2SC2668	R-Y/R AMP
403	2SC2668	R-Y/R AMP
404	2SA844	R-Y/R AMP
405	2SC2668	R-Y/R AMP
501	2SC2668	TEST/Y/G AMP
502	2SC2668	TEST/Y/G AMP
503	2SC2668	TEST/Y/G AMP
504	2SA844	TEST/Y/G AMP
505	2SC2668	TEST/Y/G AMP
601	2SC2668	B-Y/B AMP
602	2SC2668	B-Y/B AMP

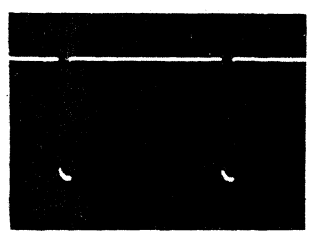
Q603	2SC2668	B-Y/B AMP
604	2SA844	B-Y/B AMP
605	2SC2668	B-Y/B AMP
701	2SA1048	SYNC AGC
702	2SC2785	SYNC AGC
703	2SC2785	SYNC AGC
704	2SC2785	SYNC AGC
705	2SC2785	SYNC AGC
706	2SA1048	SYNC AGC
707	2SC2785	SYNC AGC
708	2SA1048	SYNC AGC
709	2SC2785	SYNC AGC
710	2SA1115	SYNC AGC
711	2SA1048	SYNC AGC
712	2SA1115	SYNC AGC
713	2SA1048	COMP SYNC SEP
714	2SC2785	COMP SYNC SEP
715	2SC3068	COMP SYNC SEP
716	2SC2785	V SYNC SEP
717	2SA1115	V SYNC SEP
D1	RD3. 0E-B1	+9V REG
2	MC921	INPUT SELECT CONTROL
4	MC911	SYNC SELECT CONTROL
701	1SS119	SYNC AGC
702	RD4. 3E-B2	-7.5V REG
703	1SS119	SYNC AGC
704	1SS119	SYNC AGC
705	1SS119	SYNC AGC
706	1SS119	SYNC AGC
707	1SS119	COMP SYNC SEP
708	1SS119	COMP SYNC SEP
709	1SS119	SYNC AGC
710	1SS119	SYNC AGC



(1) 1Vp-p (H)
(2) 1Vp-p (H)

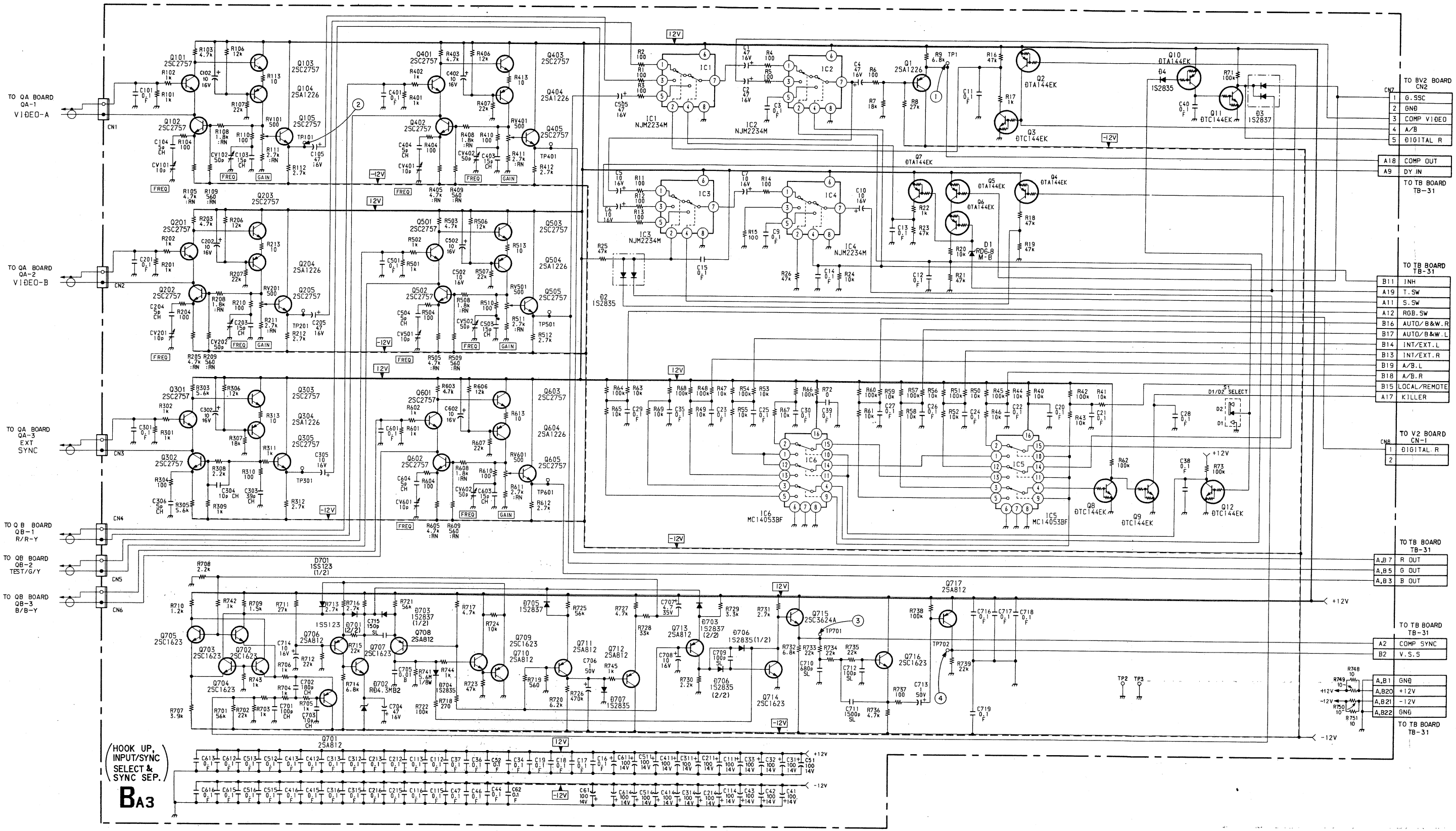


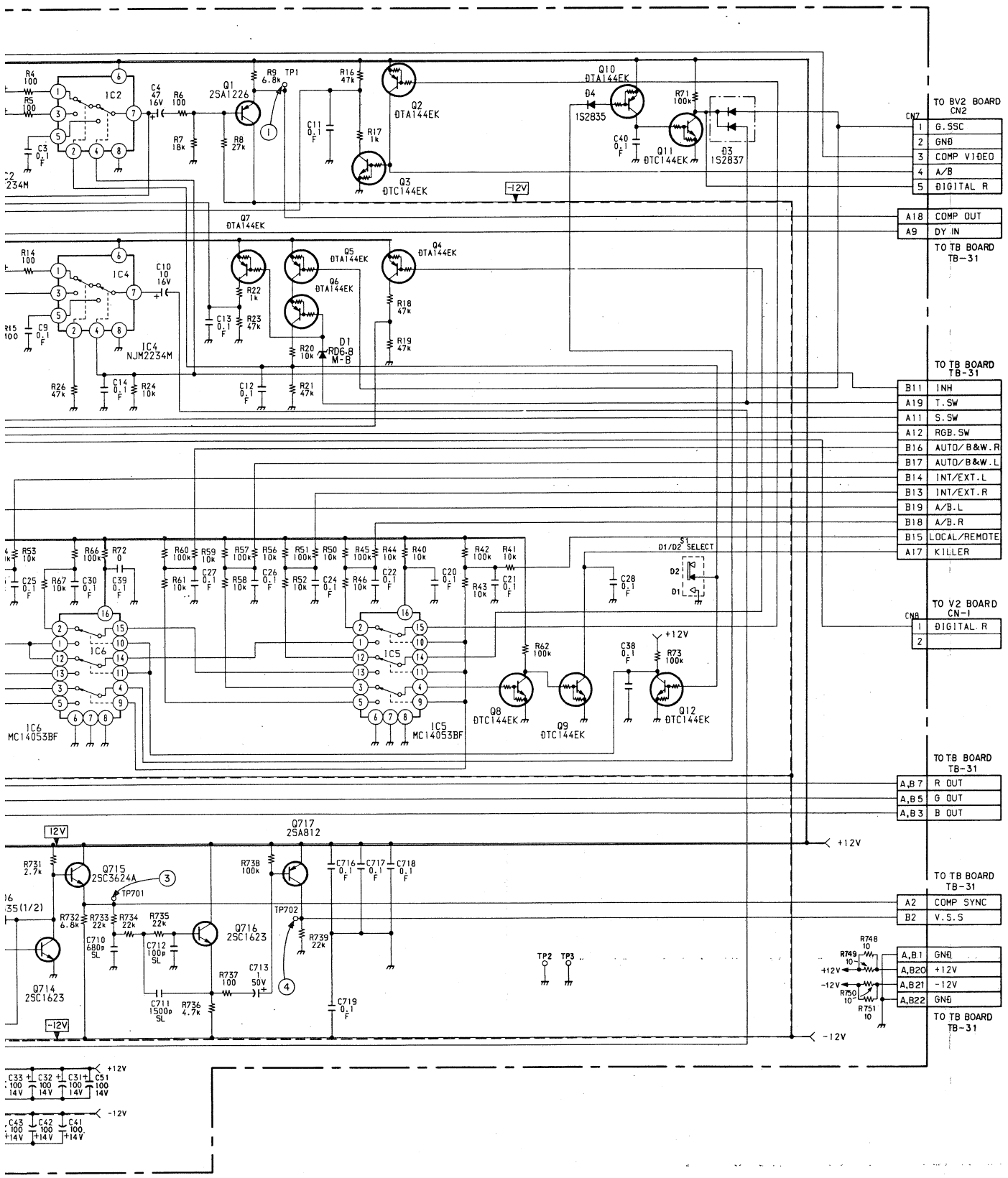
(4) 12 Vp-p (V)



(3) 12Vp-p (H)

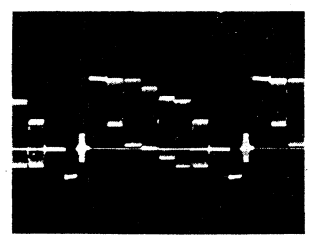
BA3 board (HOOK UP, INPUT/SYNC SELECT & SYNC SEP)
(BVM-2811 ONLY)



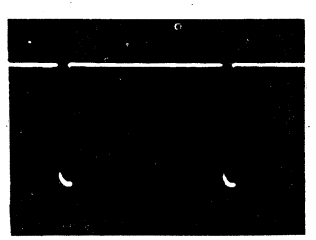


BA3 BOARD

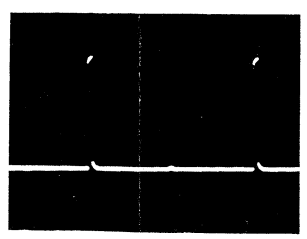
IC	1	NJM2234M	INPUT SELECT CONTROL
	2	NJM2234M	INPUT SELECT CONTROL
	3	NJM2234M	SYNC SELECT CONTROL
	4	NJM2234M	SYNC SELECT CONTROL
	5	MC14053BF	REMOTE/LOCAL SW
	6	MC14053BF	D-2 FUNCTION SW
Q	1	2SA1226	BUFFER
	2	DTA144EK	A/B CONTROL
	3	DTA144EK	A/B CONTROL
	4	DTA144EK	INT/EXT CONTROL
	5	DTA144EK	INPUT SELECT CONTROL
	6	DTA144EK	INPUT SELECT CONTROL
	7	DTA144EK	INPUT SELECT CONTROL
	8	DTA144EK	KILLER SW
	9	DTA144EK	KILLER SW
	10	DTA144EK	REMOTE DIGITAL
	11	DTA144EK	REMOTE DIGITAL
	12	DTA144EK	D-2 FUNCTION CONTROL
	101	2SC2757	VIDEO A AMP
	102	2SC2757	VIDEO A AMP
	103	2SC2757	VIDEO A AMP
	104	2SA1226	VIDEO A AMP
	105	2SC2757	VIDEO A AMP
	201	2SC2757	VIDEO B AMP
	202	2SC2757	VIDEO B AMP
	203	2SC2757	VIDEO B AMP
	204	2SA1226	VIDEO B AMP
	205	2SC2757	VIDEO B AMP
	301	2SC2757	EXT SYNC AMP
	302	2SC2757	EXT SYNC AMP
	303	2SC2757	EXT SYNC AMP
	304	2SA1226	EXT SYNC AMP
	305	2SC2757	EXT SYNC AMP
	401	2SC2757	R-Y/R AMP
	402	2SC2757	R-Y/R AMP
	403	2SC2757	R-Y/R AMP
	404	2SA1226	R-Y/R AMP
	405	2SC2757	R-Y/R AMP
	501	2SC2757	TEST/Y/G AMP
	502	2SC2757	TEST/Y/G AMP
	503	2SC2757	TEST/Y/G AMP
	504	2SA1226	TEST/Y/G AMP
	505	2SC2757	TEST/Y/G AMP
	601	2SC2757	B-Y/B AMP
	602	2SC2757	B-Y/B AMP
	603	2SC2757	B-Y/B AMP
	604	2SA1226	B-Y/B AMP
	605	2SC2757	B-Y/B AMP
	701	2SA812	SYNC AGC
	702	2SC1623	SYNC AGC
	703	2SC1623	SYNC AGC
	704	2SC1623	SYNC AGC
	705	2SC1623	SYNC AGC
	706	2SA812	SYNC AGC
	707	2SC1623	SYNC AGC
	708	2SA812	SYNC AGC
	709	2SC1623	SYNC AGC
	710	2SA812	SYNC AGC
	711	2SA812	SYNC AGC
	712	2SA812	SYNC AGC
	713	2SA812	COMP SYNC SEP
	714	2SC1623	COMP SYNC SEP
	715	2SC3624A	COMP SYNC SEP
	716	2SC1623	V SYNC SEP
	717	2SA812	V SYNC SEP
D	1	RD6.8M-B	INPUT SELECT CONTROL
	2	1S2835	INPUT SELECT CONTROL
	3	1S2837	REMOTE DIGITAL CONTROL
	4	1S2835	REMOTE DIGITAL CONTROL
	701	1SS123	SYNC AGC
	702	RD4.3M-B2	–7.5V REG
	703	1S2837	SYNC AGC
	704	1S2835	SYNC AGC
	705	1S2837	SYNC AGC
	706	1S2835	COMP SYNC SEP
	707	1S2835	SYNC AGC



(1) *1Vp-p (H)*
(2) *1Vp-p (H)*



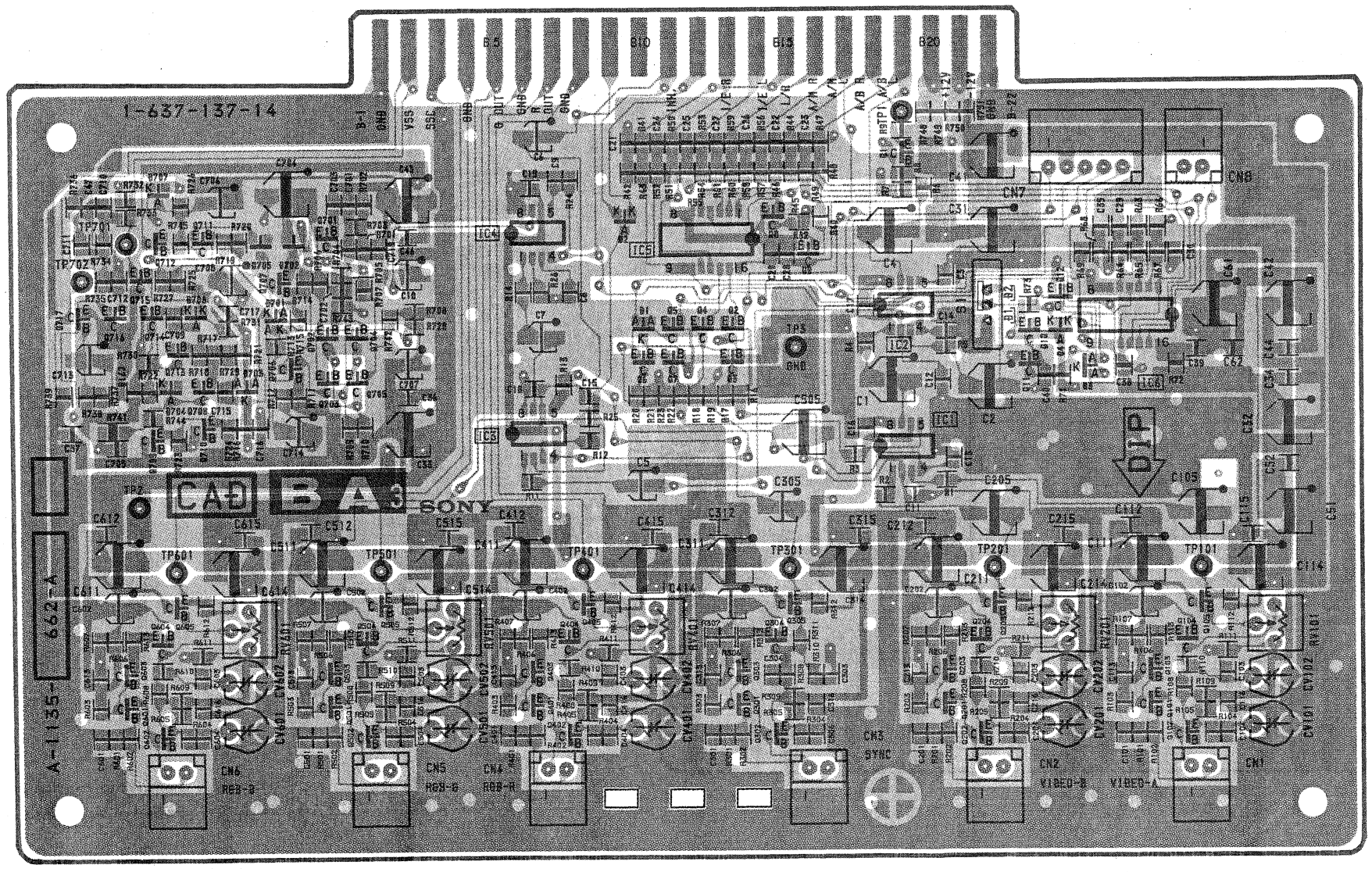
(3) *12Vp-p (H)*



(4) *12 Vp-p (V)*

BA3 board (HOOK UP, INPUT/SYNC SELECT & SYNC SEP)
(BVM-2811 ONLY)

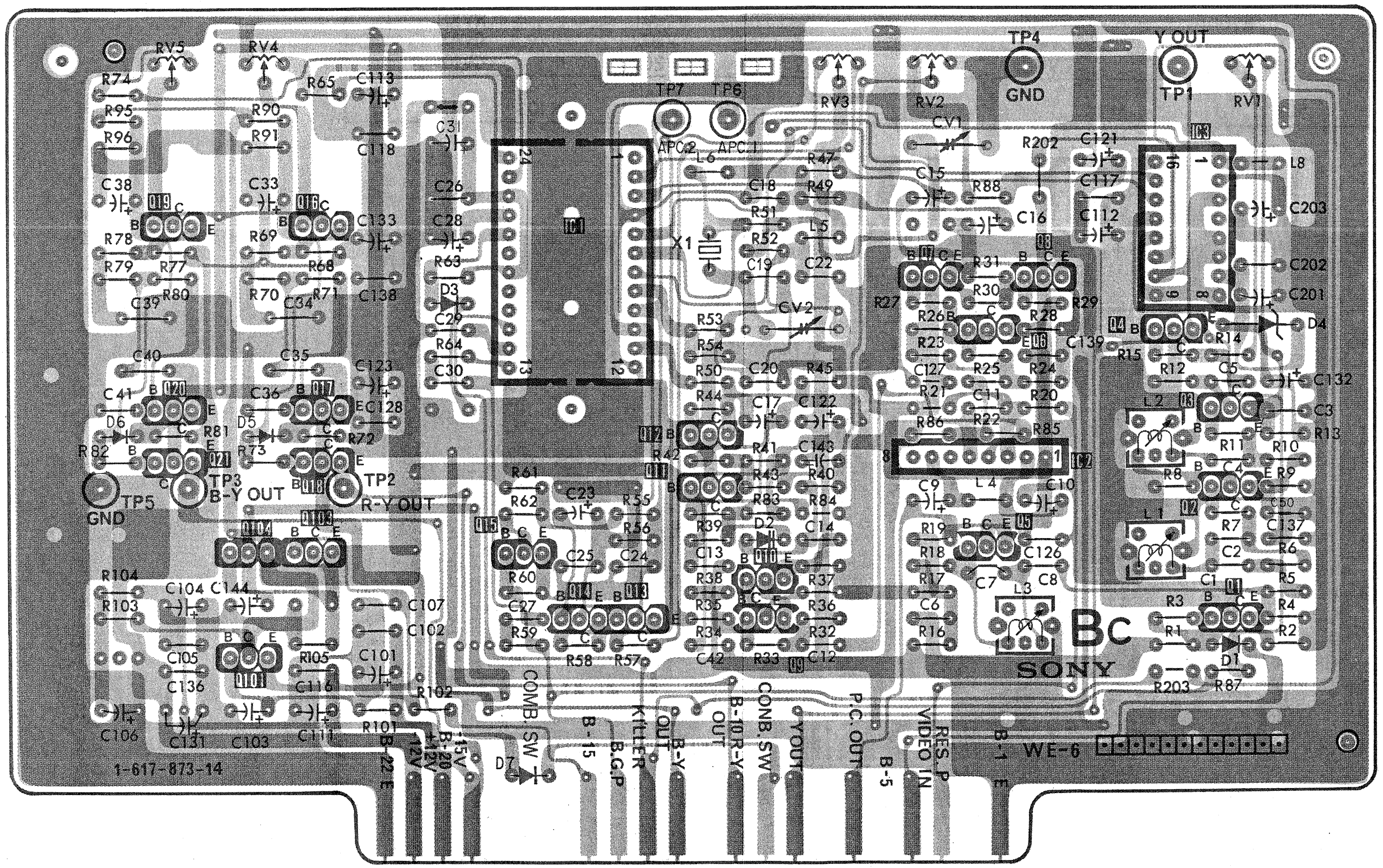
IC	4 3	5	2 1	6	IC
Q	712 711 701 715 707 717 716 714 713 708 706 702 704 703 705 709 710 603 604 605 601 602 503 504 505 501 502 403 404 405 401 402	8 1 9 5 4 2 6 7 3	12 10 11 303 304 305 301 302 203 204 205 201 202	103 104 105 101 102	Q
D	707 705 702 706 701 704 703	2 1	4 3		D
ADJ	RV601 CV602 CV601	RV501 CV502 CV501	RV401 CV402 CV401	RV201 CV202 CV201 RV101 CV102 CV101	ADJ
TP	702 701 2 601	501	401 3 301	1 201 101	TP



• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

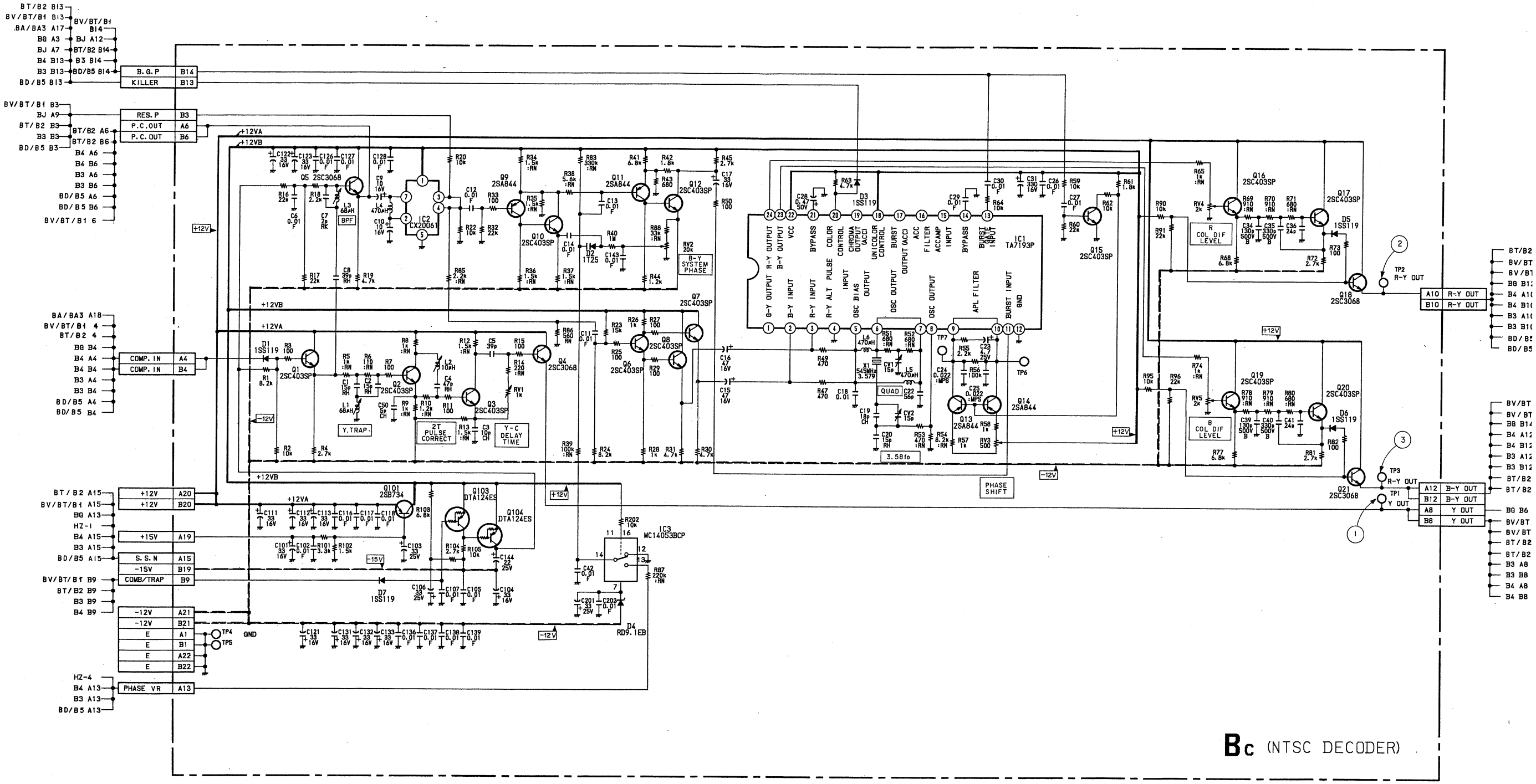
BC board (NTSC DECODER Y. TRAP)
(BVM-2811/3011 ONLY)

IC								1						2			3			
Q		19 20 21	104 101	16 17 18 103		15		14	13	12 11	10 9		7	6 5	8		4	3 2 1		
D	6		5		3		7				2							1	4	
TP ADJ	TP5	RV5 TP3	RV4	TP2						TP7	TP6	CV2	RV3	RV2 CV1	TP4		TP1	RV1		

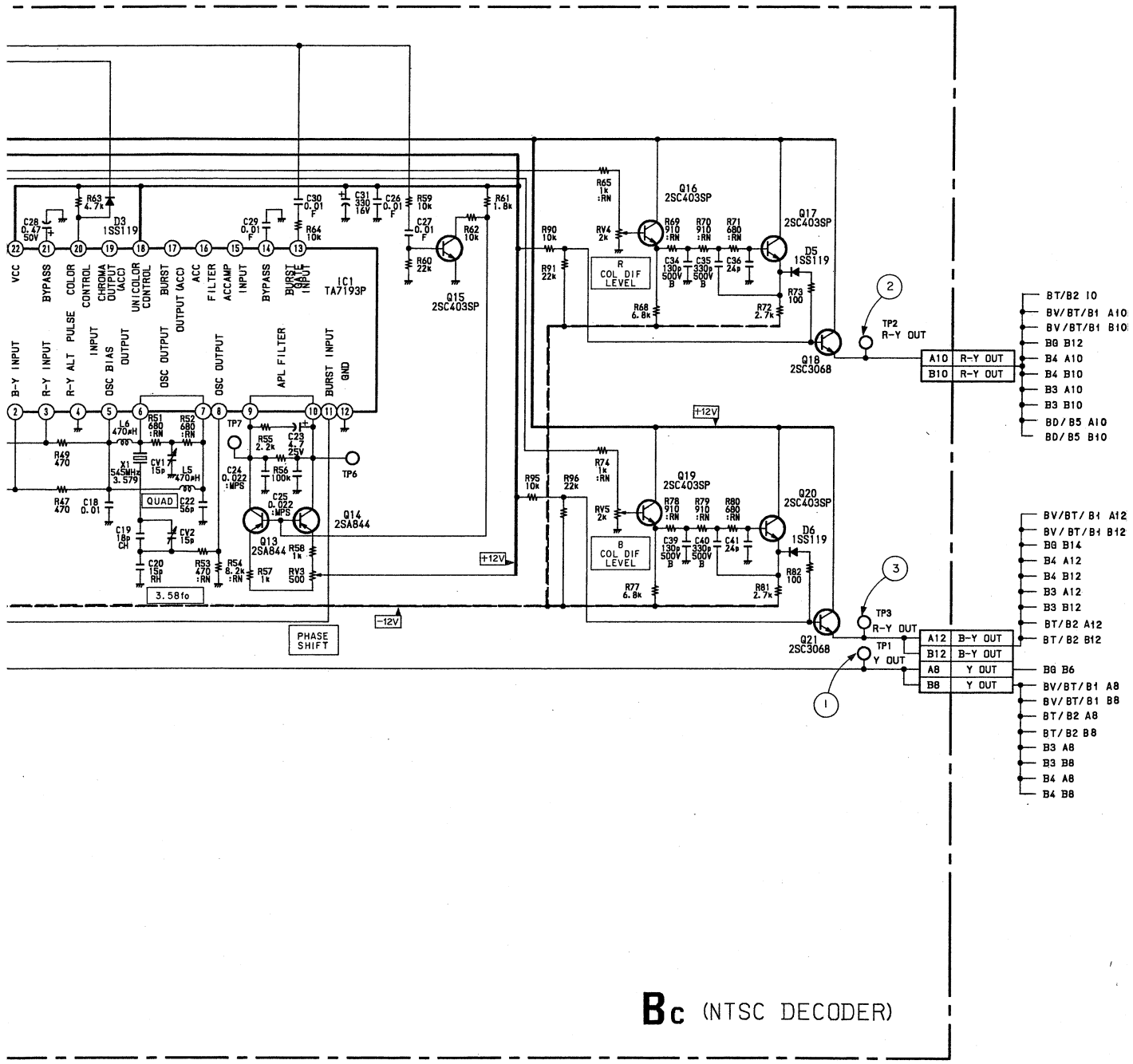


• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

BC board (NTSC DECODER Y. TRAP)
(BVM-2811/3011 ONLY)



Bc (NTSC DECODER)



Bc (NTSC DECODER)

BC BOARD

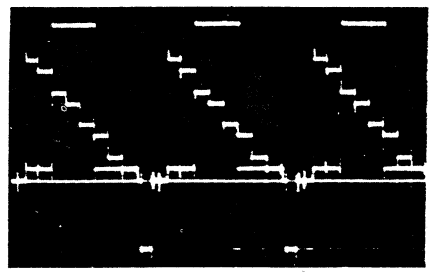
IC1	TA7193P	DEMODULATOR
2	CX20061	RESIDUAL SWITCH
3	MC14053BCP	ANALOG SWITCH
Q1	2SC403SP	BUFF.
2	2SC403SP	ACTIVE FILTER
3	2SC403SP	Y-DELAY CORRECT
4	2SC3068	BUFF.
5	2SC3068	BUFF.
6	2SC403SP	AMP.
7	2SC403SP	BUFF.
8	2SC403SP	BUFF.
9	2SA844	PHASE CONTROL
10	2SC403SP	PHASE CONTROL
11	2SA844	PHASE CONTROL
12	2SC403SP	PHASE CONTROL
13	2SA844	APL FILTER
14	2SA844	APL FILTER
15	2SC403SP	APL FILTER
16	2SC403SP	LOW PASS FILTER
17	2SC403SP	LOW PASS FILTER
18	2SC3068	BUFF.
19	2SC403SP	LOW PASS FILTER
20	2SC403SP	LOW PASS FILTER
21	2SC3068	BUFF.
101	2SB734	SYSTEM SW.
103	DTA124ES	COMB. SWITCH
104	DTA124ES	COMB. SWITCH
D1	1SS119	SYSTEM SWITCH
2	1T25	PHASE CONTROL
3	1SS119	KILLER SWITCH
4	RD9.1EB3	SWITCH BIAS.
5	1SS119	SYSTEM SWITCH
6	1SS119	SYSTEM SWITCH
7	1SS119	PROTECTOR

(1) 1Vp-p (H)

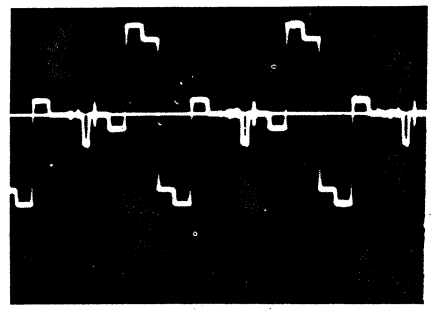
(2) 0.3Vp-p (H)

(3) 0.36 Vp-p (H)

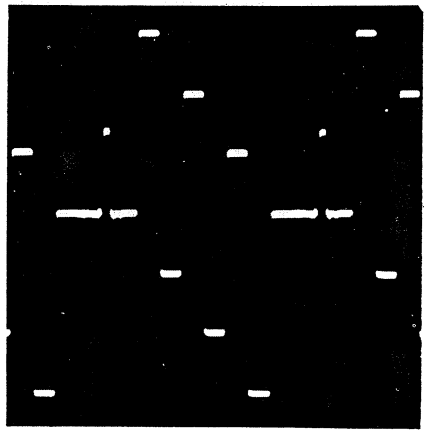
BD board (PAL DECODER Y. TRAP)
(BVM-3011P ONLY)



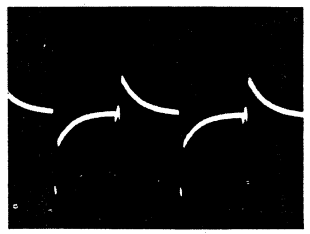
(1) 1Vp-p (H)



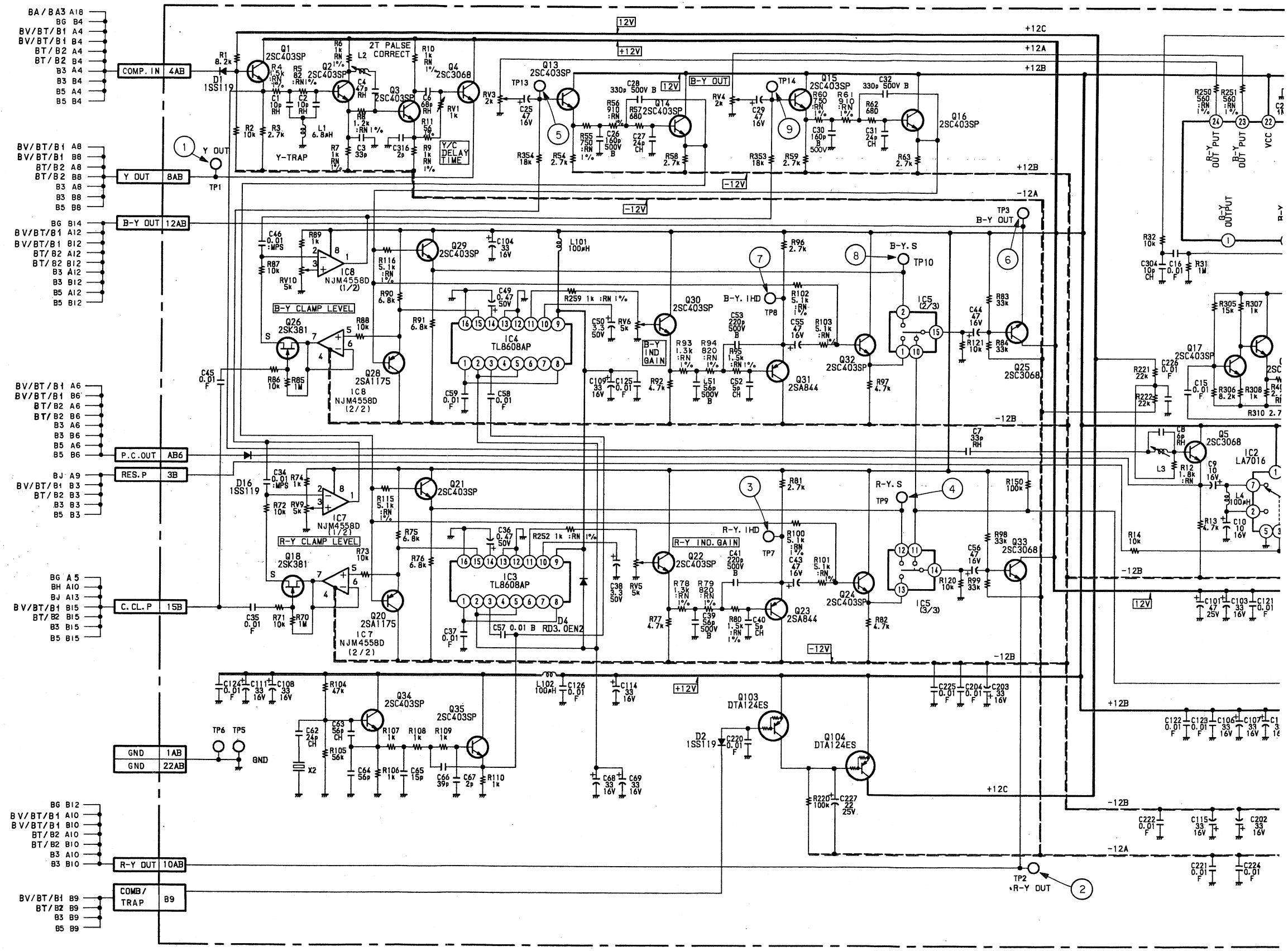
(2) 0.3Vp-p
(3) 0.32Vp-p
(4) 0.32Vp-p
(5) 0.36Vp-p

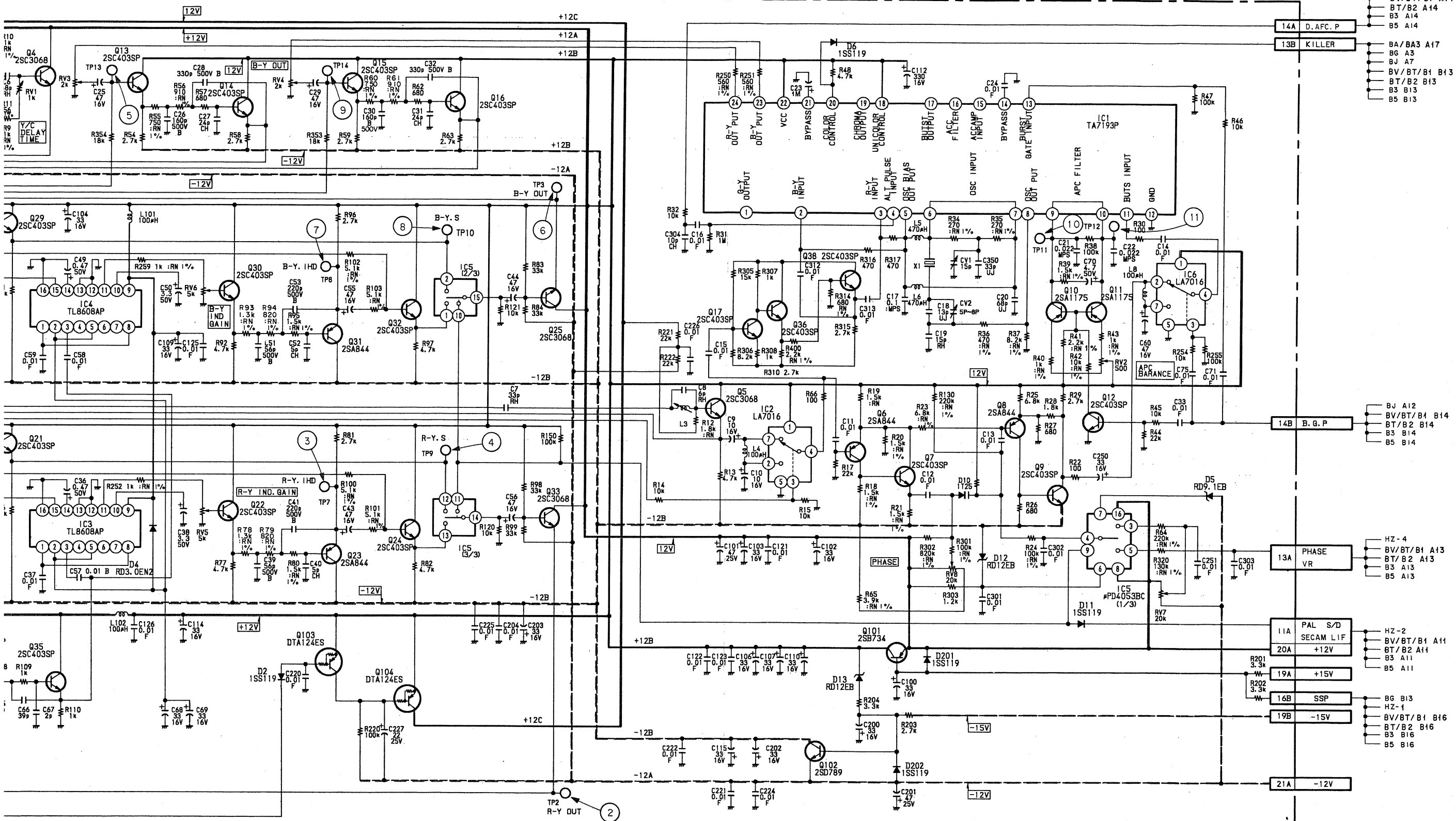


(6) 0.38Vp-p
(7) 0.38Vp-p
(8) 0.39Vp-p
(9) 0.42Vp-p



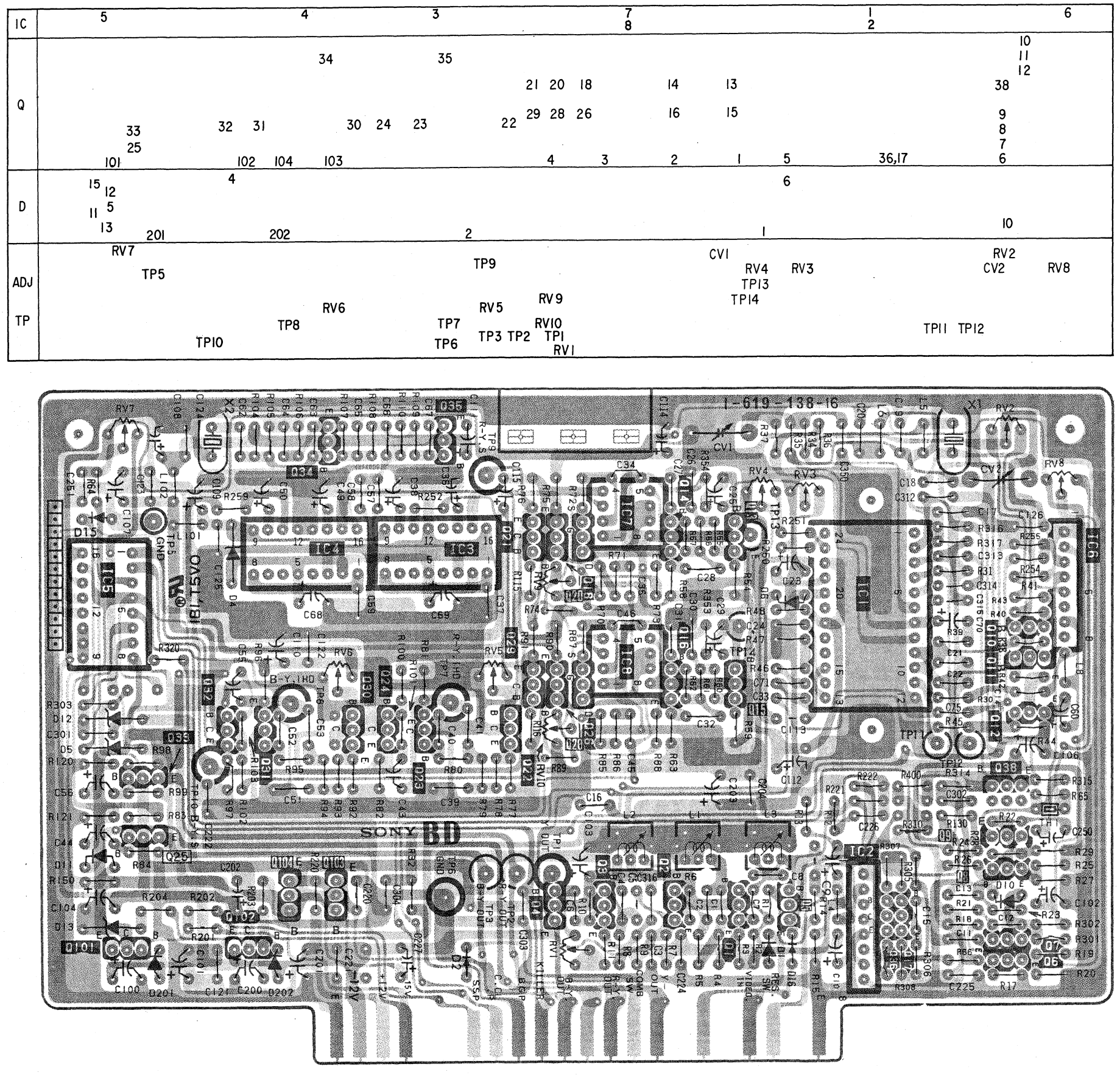
(10) 0.26Vp-p (H)
(11) 0.26Vp-p (H)





BD (PAL DECODER Y. TRAP)

BD board (PAL DECODER Y. TRAP)
(BVM-3011P ONLY)



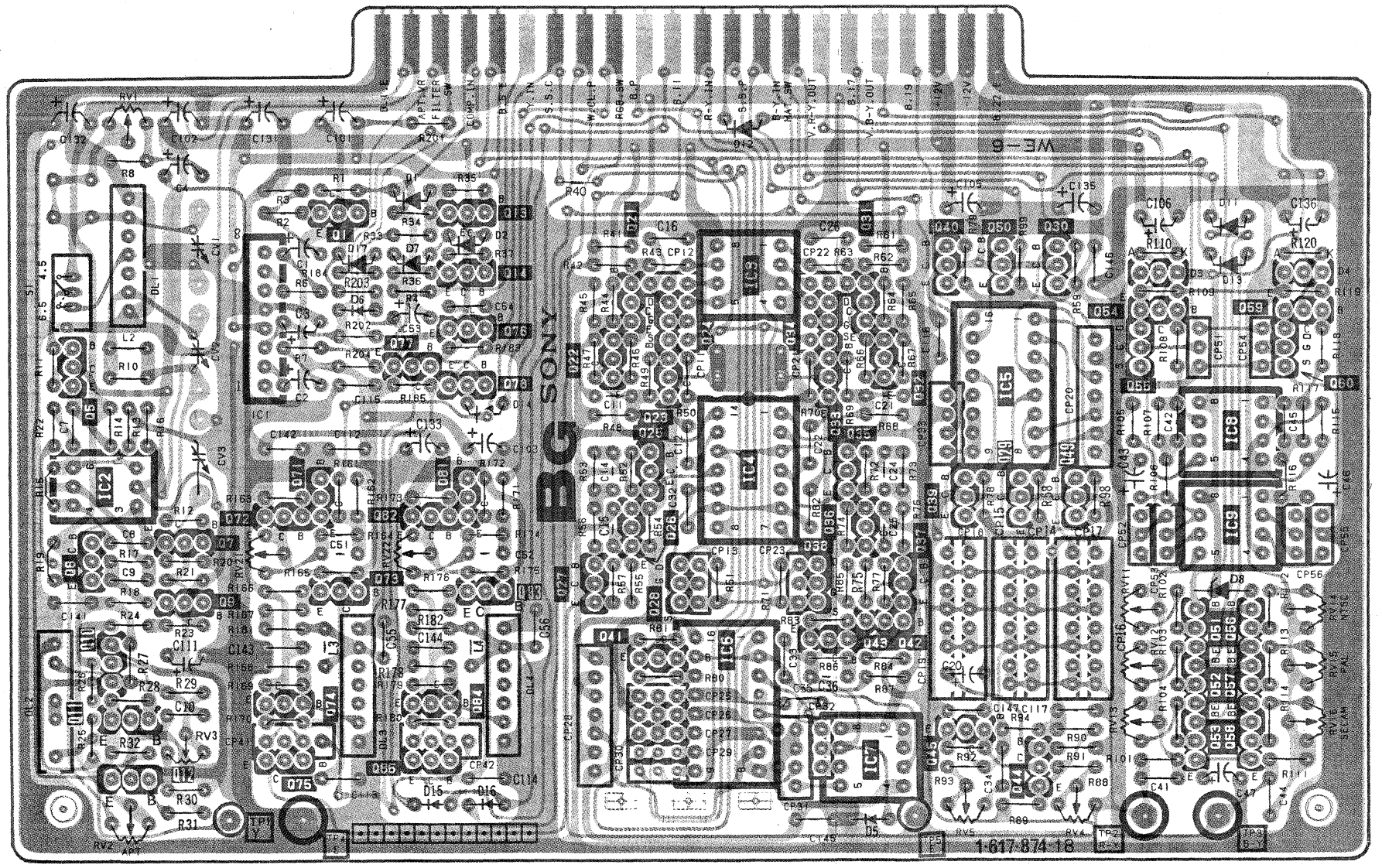
BD BOARD

IC1	TA7193P	PAL DEMODULATOR
2	LA7016	RESIDUAL SWITCH
3	TL8608P	1H DELAY LINE
4	TL8608P	1H DELAY LINE
5	MC14053BCP	ANALOG SWITCHER
6	LA7016	BURST GATE
7	NJM4558P	R-Y CLAMP
8	NJM4558P	B-Y CLAMP
Q1	2SC403SP	BUFFER
2	2SC403SP	ACTIVE FILTER
3	2SC403SP	Y-DELAY CORRECTER
4	2SC3068	BUFFER
5	2SC3068	BUFFER
6	2SA844	PHASE CONTROLLER
7	2SC403SP	PHASE CONTROLLER
8	NJM4558P.	PHASE CONT. AMP.
9	NJM4558P	PHASE CONT. AMP.
10	2SA1175	APL FILTER
11	2SA1175	APL FILTER
12	2SC403SP	APL FILTER SWITCH
13	2SC403SP	R-Y L.P.F
14	2SC403SP	R-Y L.P.F
15	2SC403SP	B-Y L.P.F
16	2SC403SP	B-Y L.P.F
17	2SC403SP	AMPLIFIER
18	2SK381	R-Y CLAMP
20	2SA1175	BUFFER
21	2SC403SP	BUFFER
22	2SC403SP	CCD OUT L.P.F
23	2SA844	CCD OUT L.P.F
24	2SC403SP	BUFFER
25	2SC3068	BUFFER
26	2SK381	B-Y CLAMP
28	2SA1175	BUFFER
29	2SC403SP	BUFFER
30	2SC403SP	CCD OUT L.P.F
31	2SA844	CCD OUT L.P.F
32	2SC403SP	BUFFER
33	2SC3068	BUFFER
34	2SC403SP	CCD CLOCK GEN
35	2SC403SP	CCD CLOCK GEN
36	2SC403SP	BUFFER
38	2SC403SP	BUFFER
101	2SB734	SYSTEM SWITCH
102	2SD789	SYSTEM SWITCH
103	DTA124ES	COMB. SWITCH
104	DTA124ES	COMB. SWITCH
D1	1SS119	SYSTEM SWITCH
2	1SS119	COMB. SWITCH
4	RD3.0EB1	CCD BIAS
5	RD9.1EB2	SWITCH BIAS
6	1SS119	KILLER SWITCH
10	1T25	PHASE CONTROL
11	1SS119	PAL S/D SWITCH
12	RD12EB2	PHASE SWITCH
13	RD12EB2	SYSTEM SWITCH
16	1SS119	COMB SW
201	1SS119	PROTECTOR
202	1SS119	PROTECTOR

- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

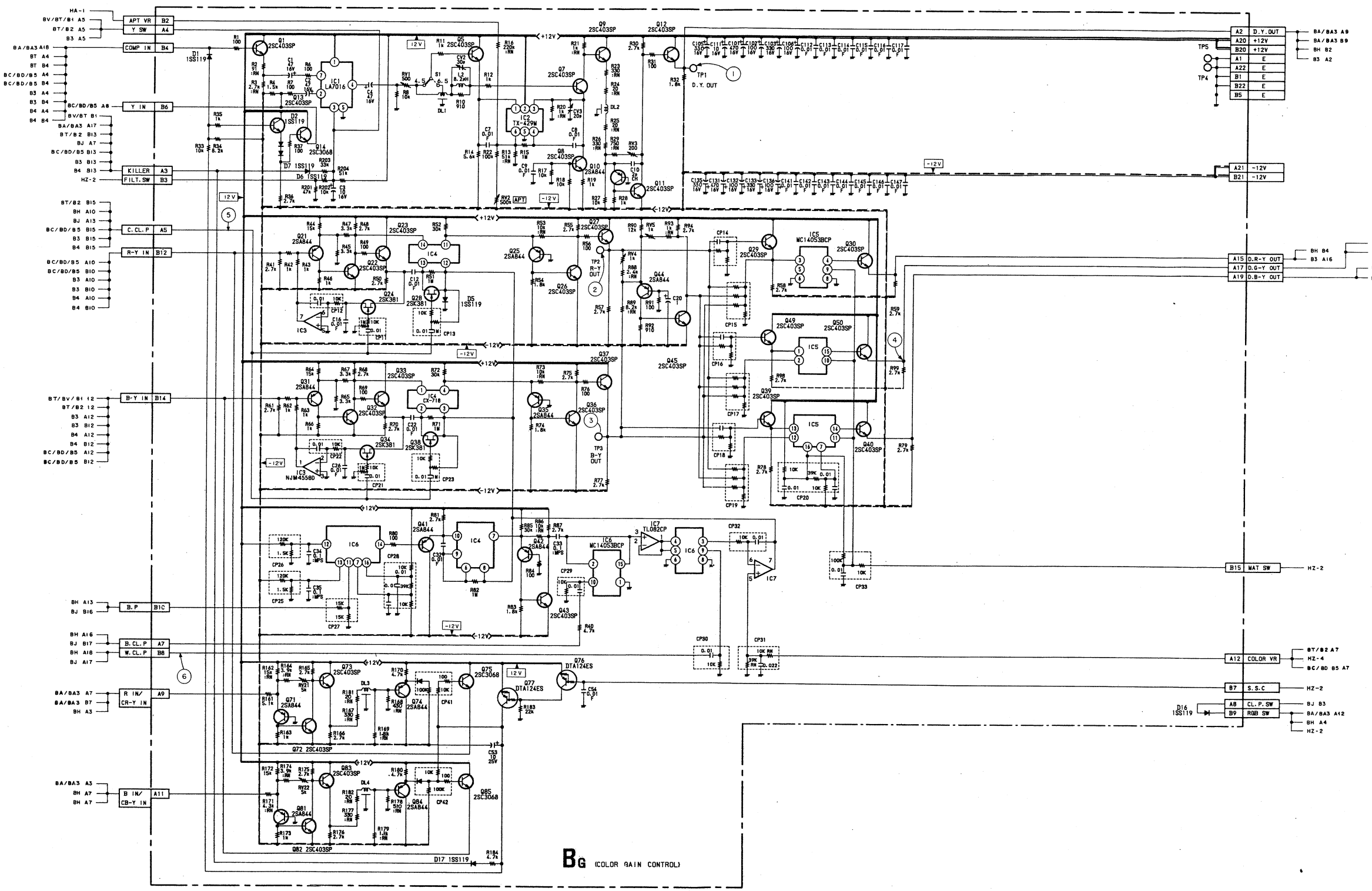
BG board (COLOR GAIN CONTROL, COMPONENT R-Y/B-Y AMP & DELAY, APERTURE CONTROL, Y DELAY, NTSC MATRIX SW, G-Y MATRIX AMP)

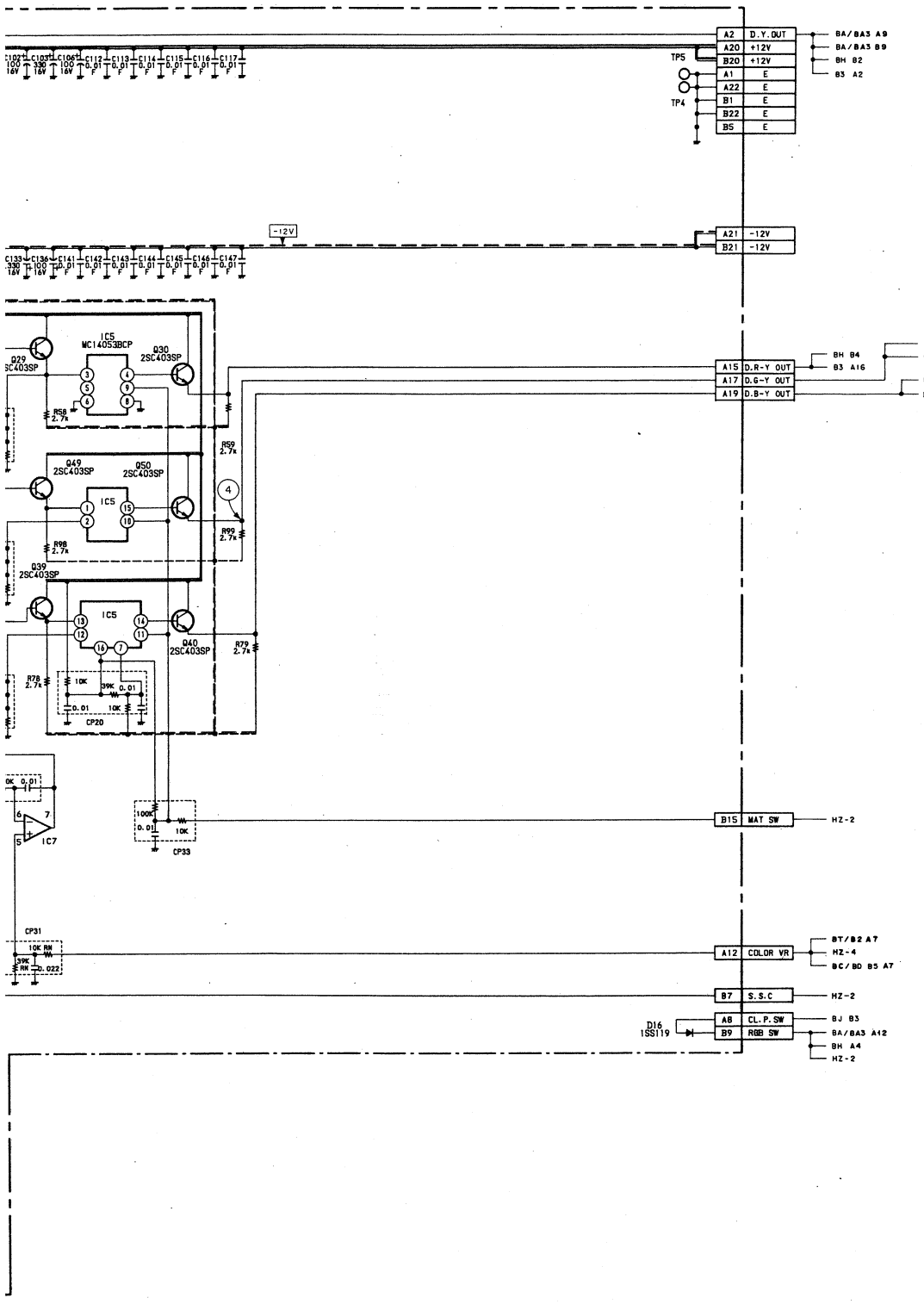
IC	1 3 4 6 7 5 8 9
Q	5 8 10 11 12 7 9 72 74 75 71 73 1 13 14 76 77 78 81 82 83 84 85 21 22 24 23 25 26 27 28 41 34 33 35 31 32 36 37 38 43 42 40 50 30 39 29 49 45 44 54 55 59 60 51 52 53 56 57 58
D	17 6 1 7 2 14 15 16 12 5 3 11 13 8 4
TP ADJ	RV1 CV2 CV3 RV3 RV21 RV22 RV2 TP1 TP4 TP5 RV5 RV4 RV11 RV12 RV13 TP2 TP3 RV14 RV15 RV16



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

BG board (COLOR GAIN CONTROL, COMPONENT R-Y/B-Y AMP & DELAY, APERTURE CONTROL, Y DELAY, NTSC MATRIX SW, G-Y MATRIX AMP)

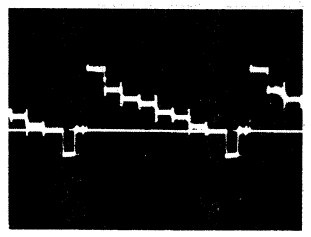




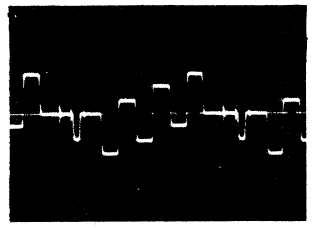
BG BOARD

IC1	LA7016	FILTER SW
2	TX-429M	APERTURE
3	NJM4558D	COLOR DIFFERENCE CLAMP
4	CX-718D	CHROMA CONTROL
5	MC14053BCP	MATRIX SW
6	MC14053BCP	CHROMA CONTROL
7	TL082CP	CHROMA CONTROL
Q1	2SC403SP	BUFF
5	2SC403SP	APERTURE
7	2SC403SP	APERTURE
8	2SC403SP	APERTURE
9	2SC403SP	Y DELAY
10	2SA844	Y AMP
11	2SC403SP	Y AMP
12	2SC403SP	Y AMP
13	2SC403SP	BUFF
14	2SC3068	BUFF
21	2SA844	R-Y AMP
22	2SC403SP	R-Y AMP
23	2SC403SP	R-Y CLAMP
24	2SK381	R-Y CLAMP
25	2SA844	R-Y CHROMA CONTROL
26	2SC403SP	R-Y CHROMA CONTROL
27	2SC403SP	R-Y CHROMA CONTROL
28	2SK381	R-Y CHROMA CONTROL
29	2SC403SP	R-Y BUFF
30	2SC403SP	R-Y BUFF
31	2SA844	B-Y AMP
32	2SC403SP	B-Y AMP
33	2SC403SP	B-Y CLAMP
34	2SK381	B-Y CLAMP
35	2SA844	B-Y CHROMA CONTROL
36	2SC403SP	B-Y CHROMA CONTROL
37	2SC403SP	B-Y CHROMA CONTROL
38	2SK381	B-Y CHROMA CONTROL
39	2SC403SP	B-Y BUFF
40	2SC403SP	B-Y BUFF
41	2SA844	CHROMA CONTROL
42	2SA844	CHROMA CONTROL
43	2SC403SP	CHROMA CONTROL

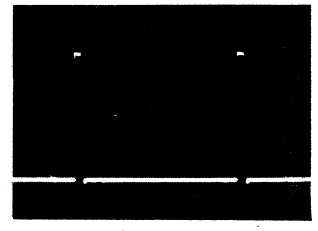
Q44	2SA844	CHROMA CONTROL
45	2SC403SP	CHROMA CONTROL
49	2SC403SP	G-Y BUFF
50	2SC403SP	G-Y BUFF
71	2SA844	R-Y AMP
72	2SC403SP	R-Y AMP
73	2SC403SP	R-Y AMP
74	2SA844	R-Y DELAY
75	2SC3068	R-Y BUFF
76	DTA124ES	COMPONENT SW
77	DTA124ES	COMPONENT SW
81	2SA844	B-Y AMP
82	2SC403SP	B-Y AMP
83	2SC403SP	B-Y AMP
84	2SA844	B-Y DELAY
85	2SC3068	B-Y BUFF
D1	1SS119	COMPONENT SW
2	1SS119	DC SHIFT SW
5	1SS119	PROTECT
6	1SS119	DC SHIFT
7	1SS119	FILTER SW
16	1SS119	R.G.B. SW
17	1SS119	KILLER



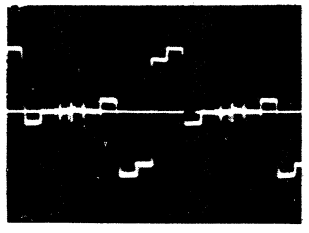
(1) 1.0Vp-p (H)



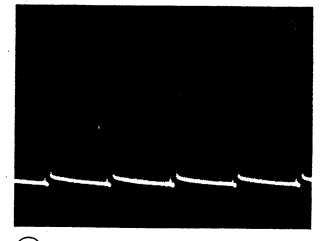
(3) 1.7Vp-p (H)



(5) 4.8Vp-p (H)



(2) 1.4Vp-p (H)

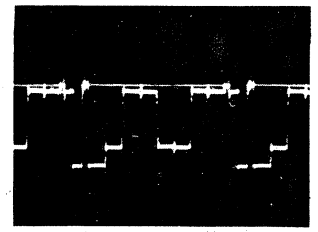


(6) 12Vp-p (H)

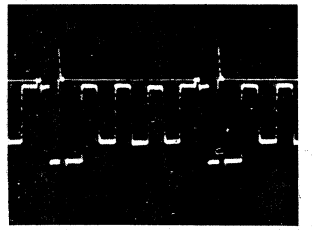
H BOARD

IC1(1/3)	TC4053BP	COMPOSITE/R.G.B. CHANGE SW
(2/3)		SET UP & CROSS HATCH SW
(3/3)		SCREENING SW
2(1/3)	TC4053BP	COMPOSITE/R.G.B. CHANGE SW
(2/3)		SET UP SW
(3/3)		SCREENING SW
3(1/3)	TC4053BP	COMPOSITE/R.G.B. CHANGE SW
(2/3)		SET UP SW
(3/3)		SCREENING SW
4(1/3)	TC4053BP	COMPOSITE/R.G.B. CHANGE SW
(2/3)		SET UP SW
(3/3)		SCREENING SW
5	NJM4558S	SAMPLE HOLD
6	NJM4558S	SAMPLE HOLD
7	LA7016	BLUE ONLY SW
8	LA7016	BLUE ONLY SW
9	MC14053BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
10(1/2)	MC14053BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
(2/2)		COLOR DIFFERENCE & R.G.B. SCREENING PULSE GEN
11(1/4)	MC14081BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
(3/4)		
(2/4)		COLOR DIFFERENCE & R.G.B. SCREENING PULSE GEN
(4/4)		Y SCREENING PULSE GEN
12	MC14081BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
13	MC14001BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
14	TC4030BP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
101	TX-429M	R CONTRAST CONTROL
102	TL082CP	R CONTRAST & BRIGHT CONTROL
201	TX-429M	G CONTRAST CONTROL
202	TL082CP	G CONTRAST & BRIGHT CONTROL
301	TX-429M	B CONTRAST CONTROL
302	TL082CP	B CONTRAST & BRIGHT CONTROL
Q1	2SC403SP	Y BUFF
2	2SK523	Y SAMPLE HOLD
3	2SA844	Y BUFF
4	2SC403SP	R-Y/R BUFF

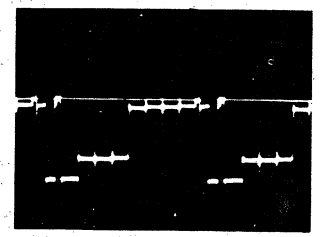
Q5	2SK523	R-Y/Y SAMPLE HOLD
6	2SA844	R-Y/R BUFF
7	2SC403SP	G-Y/R BUFF
8	2SK523	G-Y/Y SAMPLE HOLD
9	2SA844	G-Y/G BUFF
10	2SC403SP	B-Y/B BUFF
11	2SK523	B-Y/B SAMPLE HOLD
12	2SA844	B-Y/B BUFF
13	2SA844	R BUFF
14	2SA844	G BUFF
15	2SA844	B BUFF
16	2SC3068	AGC PULSE BUFF
101	2SK381	R CONTRAST CONTROL
102	2SA844	R AMP
103	2SC403SP	R AMP
104	2SC403SP	R LIMITER
105	2SC403SP	R LIMITER
106	2SK381	R BRIGHT CONTROL
107	2SK381	R CONTRAST CONTROL
108	2SK381	R CONTRAST CONTROL
201	2SK381	G CONTRAST CONTROL
202	2SA844	G AMP
203	2SC403SP	G AMP
204	2SC403SP	G LIMITER
205	2SC403SP	G LIMITER
206	2SK381	G BRIGHT CONTROL
207	2SK381	G CONTRAST CONTROL
208	2SK381	G CONTRAST CONTROL
301	2SK381	B CONTRAST CONTROL
302	2SA844	B AMP
303	2SC403SP	B AMP
304	2SC403SP	B LIMITER
305	2SC403SP	B LIMITER
306	2SK381	B BRIGHT CONTROL
307	2SK381	B CONTRAST CONTROL
308	2SK381	B CONTRAST CONTROL
D1	1SS119	
101	1SS119	R LIMITER
102	1SS119	R PROTECT
201	1SS119	G LIMITER
202	1SS119	G PROTECT
301	1SS119	B LIMITER
302	1SS119	B PROTECT



(1) 0.8Vp-p (H)

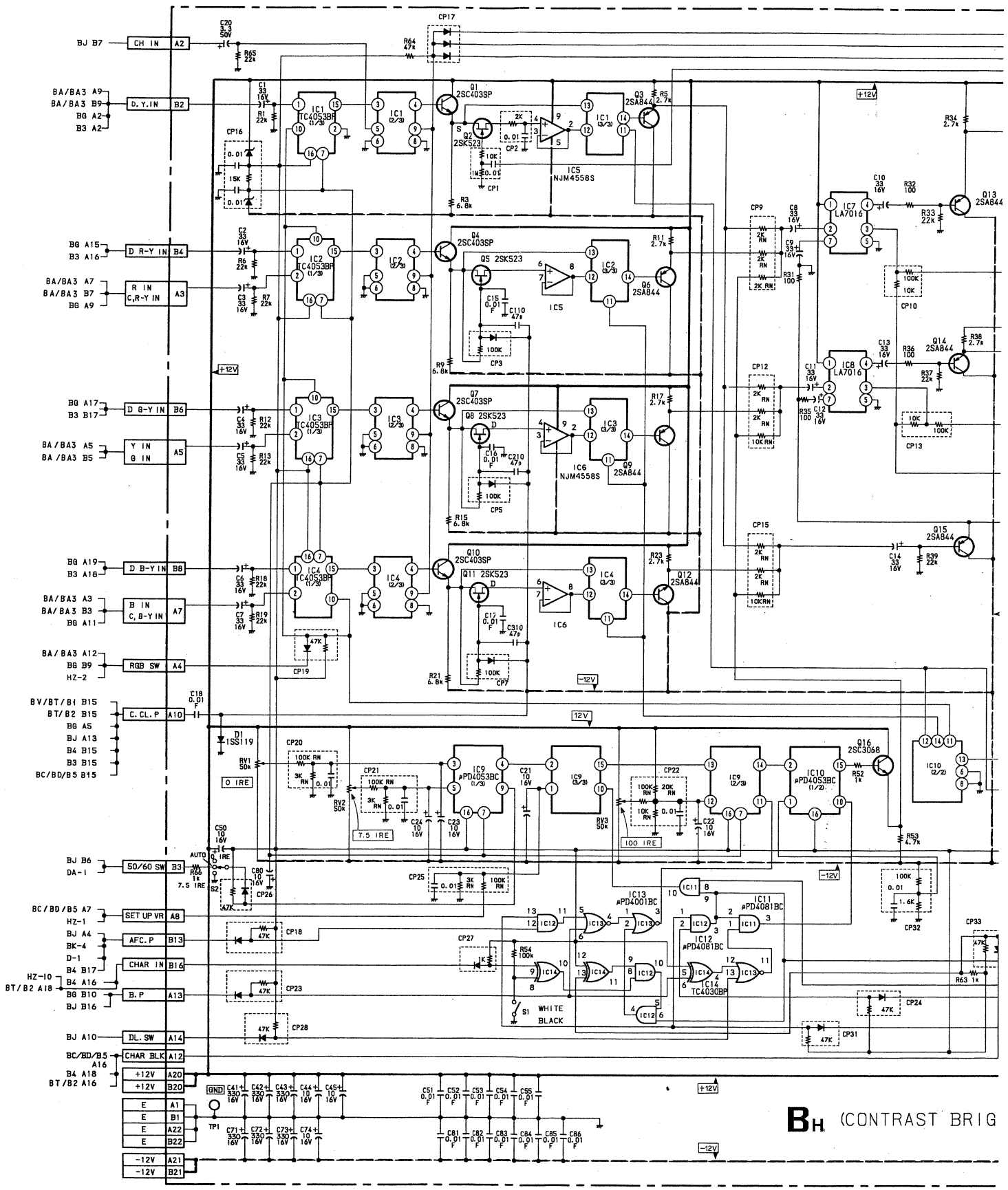


(3) 0.7Vp-p (H)



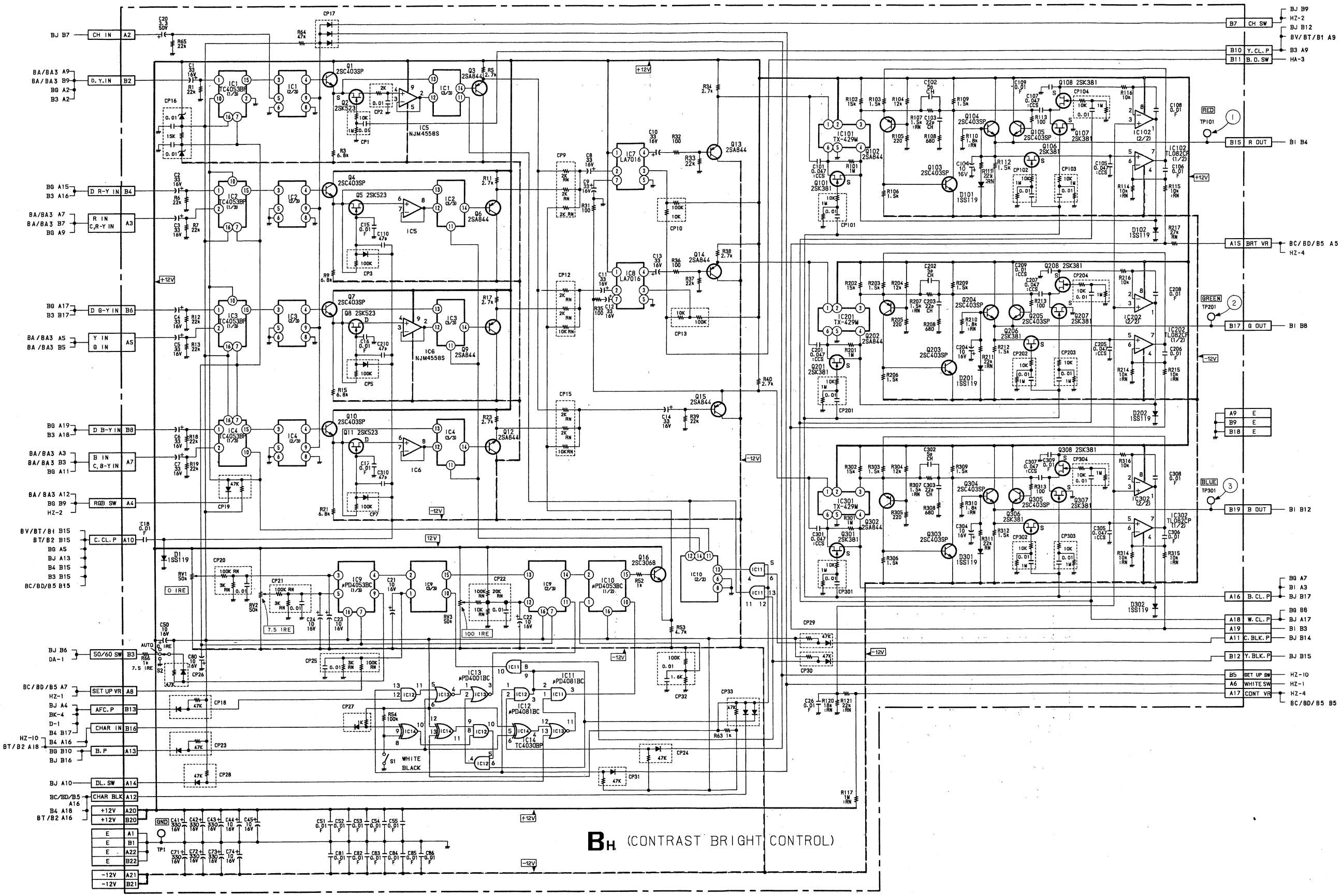
(2) 0.8Vp-p (H)

BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/ BRIGHTNESS CONTROL)



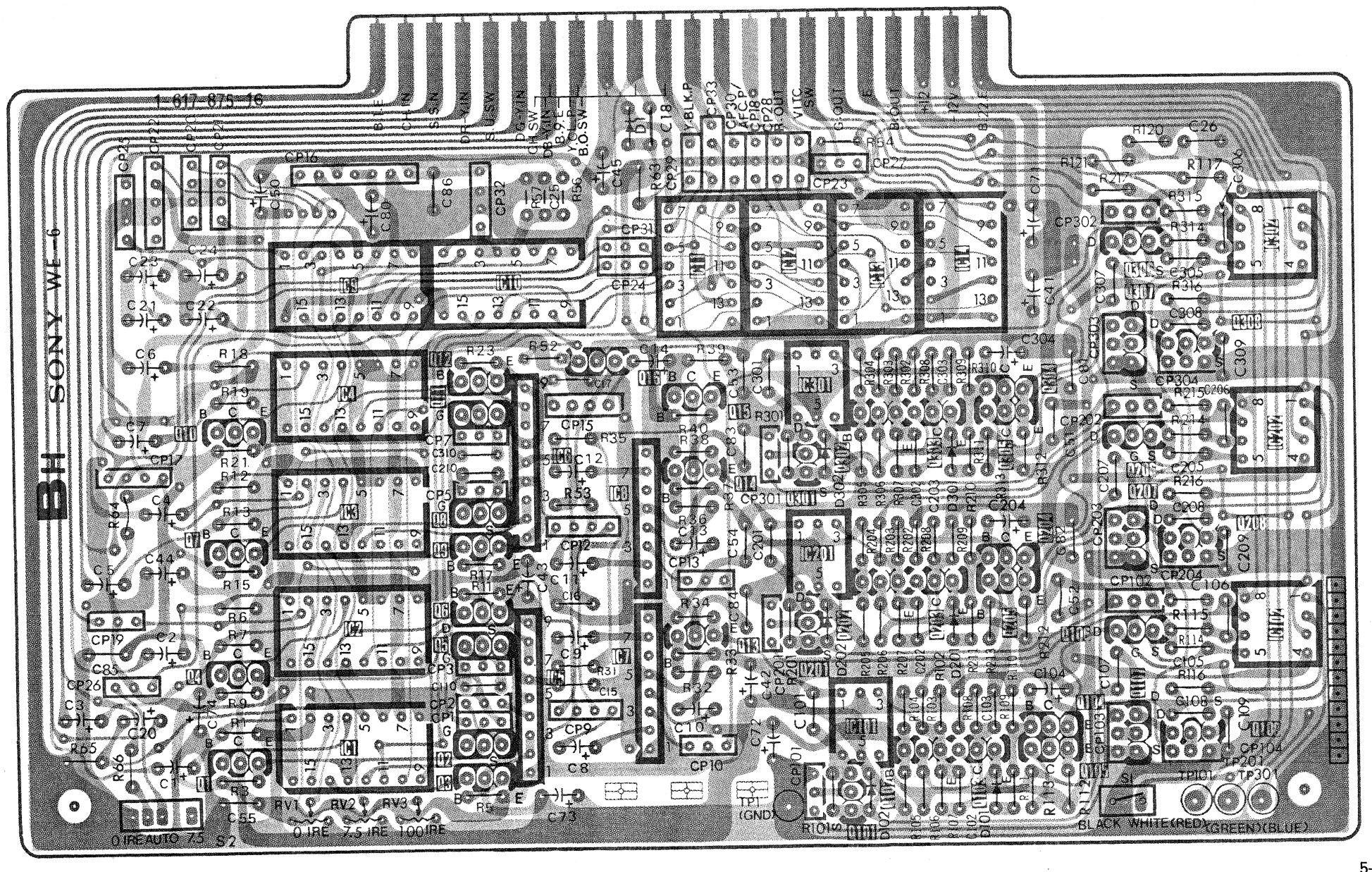
BH (CONTRAST BRIG

H board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/ BRIGHTNESS CONTROL)



BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/ BRIGHTNESS CONTROL)

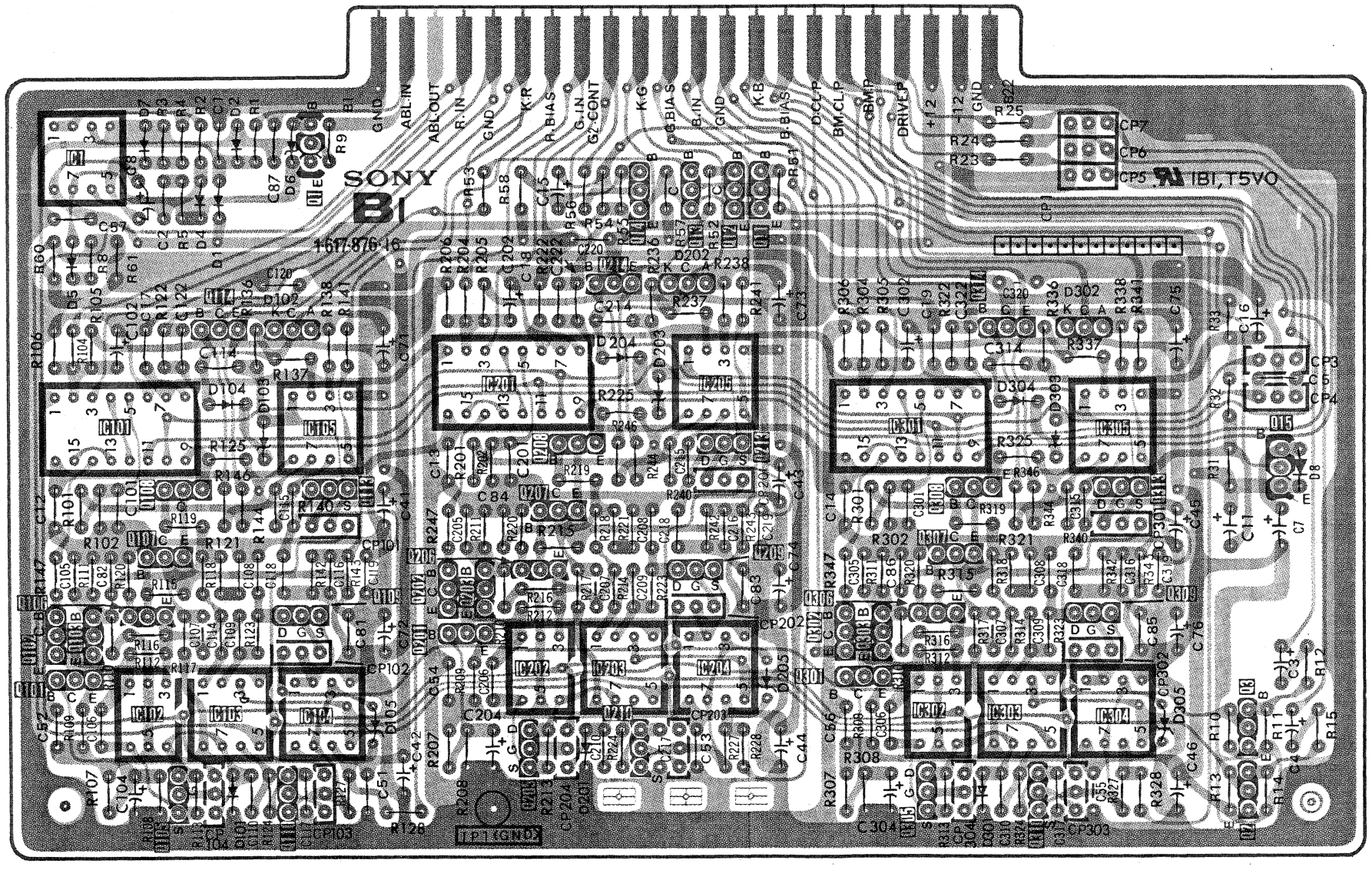
IC	9 4 3 2 1 · 10 6 5 · 11 8 7 · 12 301 201 101 · 13 · 14 · 102 202 302
Q	10 7 4 1 · 12 11 8 9 6 5 2 3 · 16 · 15 14 13 · 301 201 · 302 303 202 203 · 304 305 204 205 · 104 105 · 306 307 308 206 207 208 106 107 108
D	1 · 302 202 102 · 301 201 101
TP ADJ	RV1 RV2 RV3 · TP1 · TP201 TP101 TP301



• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

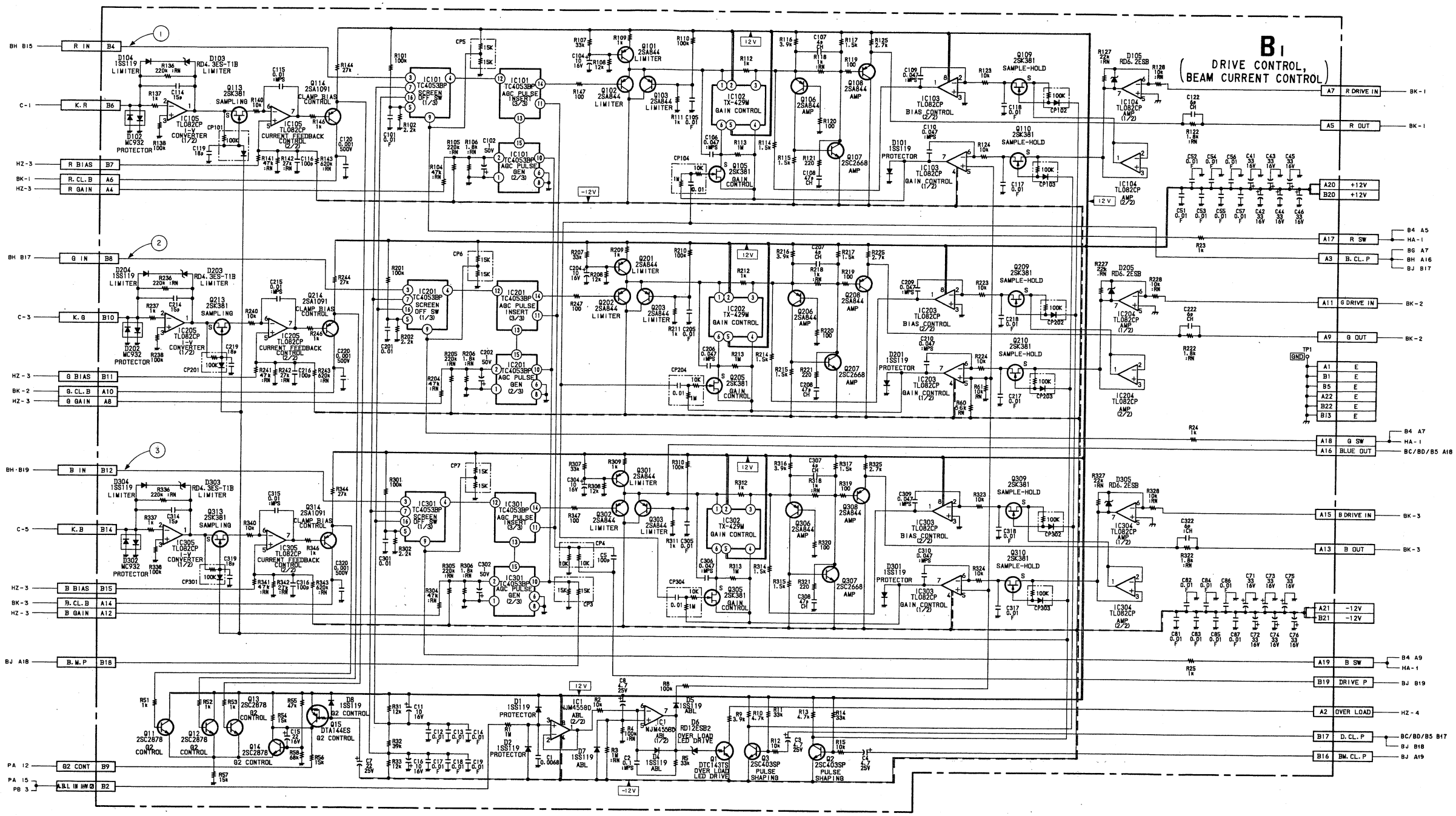
BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)

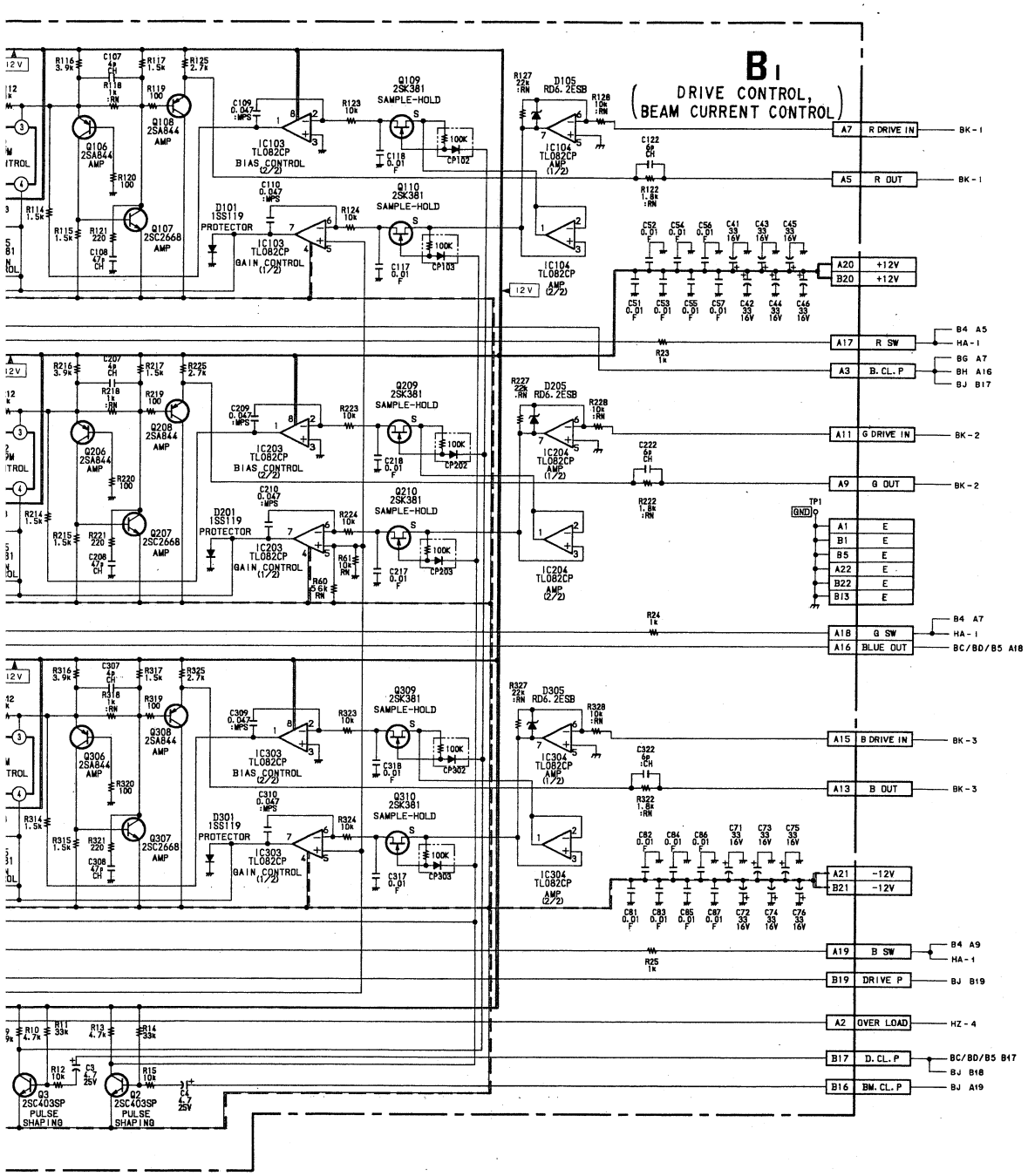
IC	1 101 105 201 205 301 305 102 103 104 202 203 204 302 303 304
Q	1 114 214 14 13 12 11 314 108 113 208 213 308 313 15 107 207 307 102 103 106 202 203 206 209 302 303 101 109 201 306 309 3 105 110 205 210 301 305 310 2
D	7 2 6 5 4 1 102 204 202 104 203 304 302 103 303 8 101 105 201 205 301 305
TP	TP1



• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)

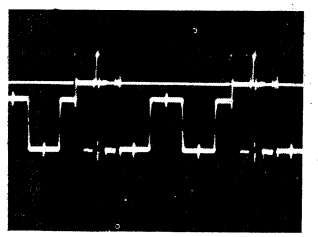




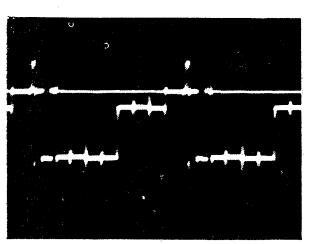
BI BOARD

IC1	NJM4558D	ABL
101(1/3)	TC4053BP	SCREEN OFF SW
(2/3)		AGC PULSE GEN
(3/3)		AGC PULSE INSERT
102	TX-429M	GAIN CONTROL
103(1/2)	TL082CP	GAIN CONTROL
(2/2)		BIAS CONTROL
104	TL082CP	AMP
105(1/2)	TL082CP	I-V CONVERTER
(2/2)		CURRENT FEEDBACK CONTROL
201(1/3)	TC4053BP	SCREEN OFF SW
(2/3)		AGC PULSE GEN
(3/3)		AGC PULSE INSERT
202	TX-429M	GAIN CONTROL
203(1/2)	TL082CP	GAIN CONTROL
(2/2)		BIAS CONTROL
204	TL082CP	AMP
205(1/2)	TL082CP	I-V CONVERTER
(2/2)		CURRENT FEEDBACK CONTROL
301(1/3)	TC4053BP	SCREEN OFF SW
(2/3)		AGC PULSE GEN
(3/3)		AGC PULSE INSERT
302	TX-429M	GAIN CONTROL
303(1/2)	TL082CP	GAIN CONTROL
(2/2)		BIAS CONTROL
304	TL082CP	AMP
305(1/2)	TL082CP	I-V CONVERTER
(2/2)		CURRENT FEEDBACK CONTROL
Q1	DTC143TS	OVER LOAD LED DRIVE
2	2SC403SP	PULSE SHAPING
3	2SC403SP	PULSE SHAPING
11	2SC2878	G2 CONTROL
12	2SC2878	G2 CONTROL
13	2SC2878	G2 CONTROL
14	2SC2878	G2 CONTROL
15	DTA144ES	G2 CONTROL
101	2SA844	LIMITER
102	2SA844	LIMITER
103	2SA844	LIMITER
105	2SK381	GAIN CONTROL
106	2SA844	AMP
107	2SC2668	AMP
108	2SA844	AMP
109	2SK381	SAMPLE-HOLD

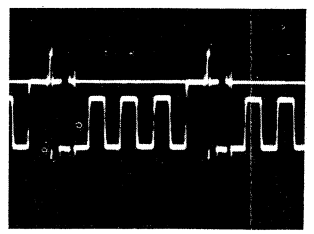
Q110	2SK381	SAMPLE-HOLD
113	2SK381	SAMPLING
114	2SA1091	CLAMP BIAS CONTROL
201	2SA844	LIMITER
202	2SA844	LIMITER
203	2SA844	LIMITER
205	2SK381	GAIN CONTROL
206	2SA844	AMP
207	2SC2668	AMP
208	2SA844	AMP
209	2SK381	SAMPLE-HOLD
210	2SK381	SAMPLE-HOLD
213	2SK381	SAMPLING
214	2SA1091	CLAMP BIAS CONTROL
301	2SA844	LIMITER
302	2SA844	LIMITER
303	2SA844	LIMITER
305	2SK381	GAIN CONTROL
306	2SA844	AMP
307	2SC2668	AMP
308	2SA844	AMP
309	2SK381	SAMPLE-HOLD
310	2SK381	SAMPLE-HOLD
313	2SK381	SAMPLING
314	2SA1091	CLAMP BIAS CONTROL
D1	1SS119	PROTECTOR
2	1SS119	PROTECTOR
4	1SS119	ABL
5	1SS119	ABL
6	RD12ESB2	OVER LOAD LED DRIVE
7	1SS119	ABL
8	1SS119	G2 CONTROL
101	1SS119	PROTECTOR
102	MC932	PROTECTOR
103	RD4.3ES-T1B	LIMITER
104	1SS119	LIMITER
D105	RD6.2ESB	LIMITER
201	1SS119	PROTECTOR
202	MC932	PROTECTOR
203	RD4.3ES-T1B	LIMITER
204	1SS119	LIMITER
D205	RD6.2ESB	LIMITER
301	1SS119	PROTECTOR
302	MC932	PROTECTOR
303	RD4.3ES-T1B	LIMITER
304	1SS119	LIMITER
D305	RD6. 2ESB	LIMITER



(1) 1.0Vp-p(H)



(2) 1.0Vp-p(H)

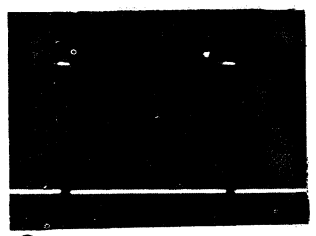


(3) 1.0Vp-p(H)

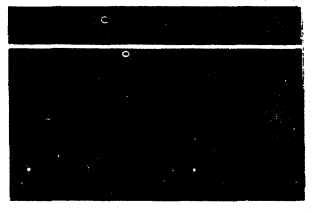
BJ BOARD

IC1	HD14538BP	PIC.SET.PULSE GEN
2	UPD4001BC	CROSS HATCH GEN
3	TC4040BP	V SYNC & DELAY
4	TC4040BP	V COUNT
5	TC504027BP	V SYNC & DELAY
6(1/2)	TC504027BP	CHROMA CLAMP PULSE GEN
(2/2)		2fH MULTI
7	TC504027BP	V COUNT
8	TC504027BP	1H PULSE PROCESS
9(1/2)	TC50427BP	V SYNC & DELAY
(2/2)		1H PULSE PROCESS
10(1/2)	HD14538BP	B.G.P GEN 2
(2/2)		H CYCLE
11(1/2)	HD14538BP	CROSS HATCH GEN
(2/2)		SPLIT Y BLK, C BLK PULSE GEN
12	HD14538BP	Y CYCLE AGC & CLAMP PULSE GEN
13(1/4)	UPD4001BC	CHROMA CLAMP PULSE GEN
(2/4)		Y.CL.P GEN
(3/4)		B.G.P GEN 2
(4/4)		RESIDUAL PULSE GEN
14(1/4)	UPD4001BC	SPLIT Y BLK: C BLK PULSE GEN
(3/4)		
(4/4)		
(2/4)		V CYCLY AGC & CLAMP PULSE GEN
15	UPD4001BC	V CYCLE AGC & CLAMP PULSE GEN
16(1/4)	HD14011BP	CROSS HATCH GEN
(2/4)		Y CYCLE AGC & CLAMP PULSE GEN
(3/4)		H OR V BLK, P
(4/4)		SPLIT Y BLK, C BLK PULSE GEN
17	HD14011BP	CROSS HATCH GEN
18	TC4023BP	CROSS HATCH GEN
19(1/4)	UPD4001BC	V COUNT
(2/4)		V SYNC & DELAY
(3/4)		2fH MULTI
(4/4)		1H PULSE PROCESS
20	UPD4001BC	V COUNT
21(1/4)	UPD4001BC	V CYCLE AGC & CLAMP PULSE GEN
(2/4)		V SYNC & DELAY
(3/4)		
(4/4)		V COUNT
22(1/4)	UPD4001BC	2fH MULTI
(2/4)		V COUNT
(3/4)		
(4/4)		V SYNC & DELAY

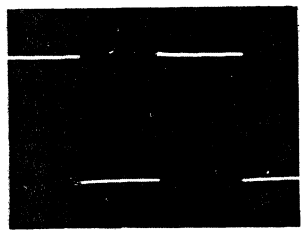
IC23(1/3)	TC4073BP	V SYNC & DELAY
(2/3)		V COUNT
(3/3)		
24(1/5)	MC14069UBCP	V SYNC & DELAY
(4/5)		CROSS HATCH GEN
(2/5)		V COUNT
(3/5)		
(5/5)		1H PULSE PROCESS
25(1/6)	MC14069UBCP	INV
(2/6)		H OR V BLK.P
(3/6)		Y CYCLE AGC & CLAMP PULSE GEN
(4/6)		CROSS HATCH GEN
(5/6)		
(6/6)		
26	MC14175BCP	1H PULSE PROCESS
27(1/3)	MC14053BCP	CLAMP PULSE CHANGE SW
(2/3)		CROSS HATCH GEN
(3/3)		H OR V DL SW
28	TC4520BP	CROSS HATCH GEN
29(1/2)	HD14538BP	B.G.P GEN 1
(2/2)		Y.CL.P GEN
Q14	2SC2785	CROSS HATCH GEN
15	2SC2785	Y.CL.P GEN
16	2SC2785	Y.CL.P GEN
17	2SC2785	CHROMA CLAMP PULSE GEN
18	2SC2785	CHROMA CLAMP PULSE GEN
19	2SA1115	H CYCLE
20	2SC2785	H CYCLE
21	2SC2785	H CYCLE
22	2SC2785	H CYCLE
23	2SA1048	H CYCLE
24	2SC2785	H CYCLE
25	2SC2785	CHROMA CLAMP PULSE GEN
26	2SC2785	Y.CL.P GEN
D1	1SS119	CROSS HATCH GEN
2	1SS119	H CYCLE
3	1SS119	H CYCLE
7	1SS119	1H PULSE PROCESS
8	1SS119	V SYNC & DELAY
9	1SS119	2fH MULTI
11	MC932	PROT



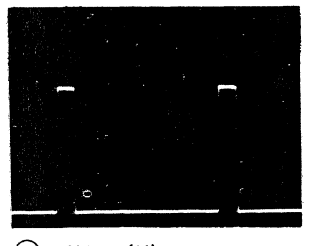
(1) 12Vp-p (H)
(2) 12Vp-p (H)



(3) 12Vp-p (V)

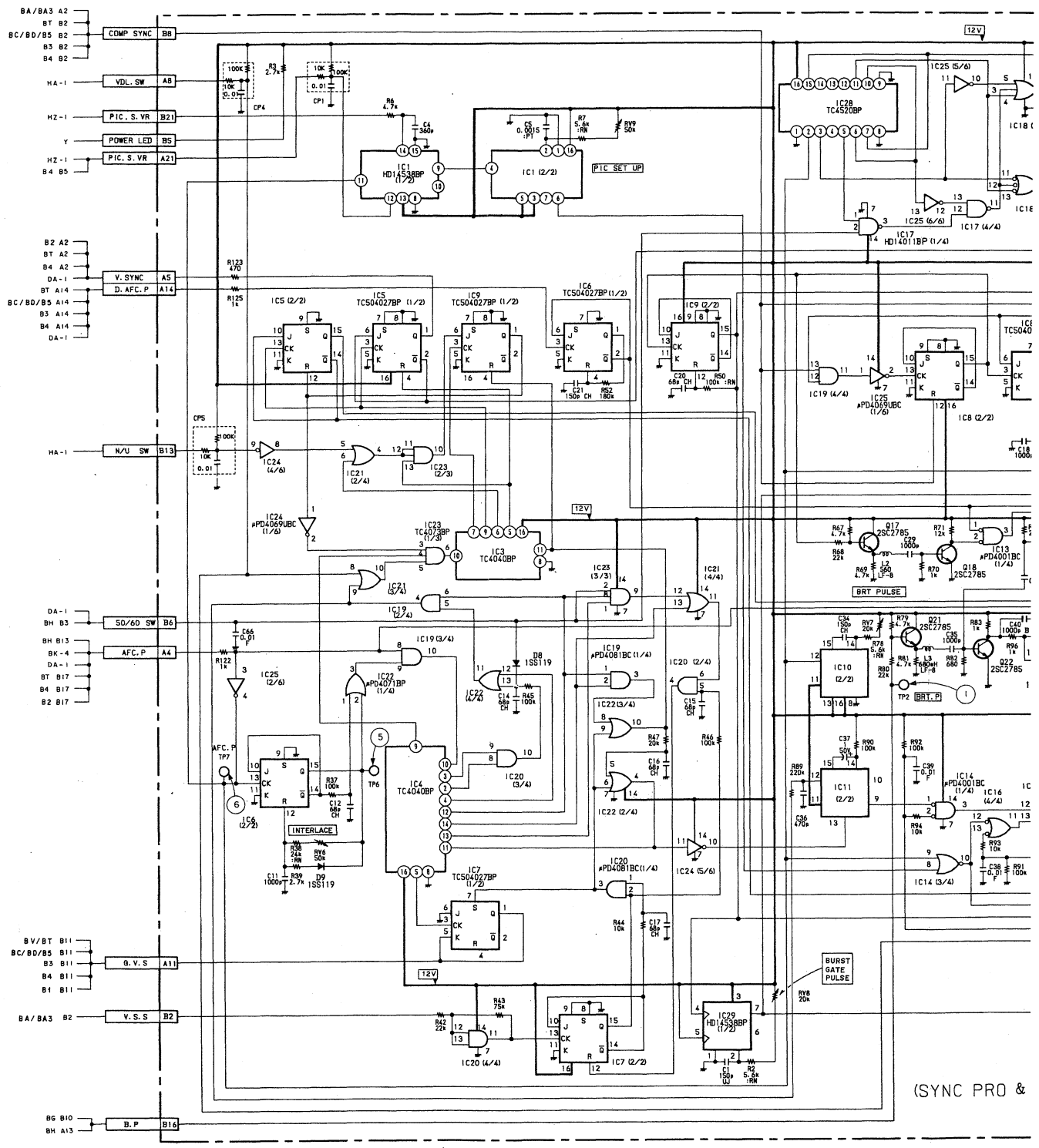


(4) 12Vp-p (H)
(5) 12Vp-p (H)

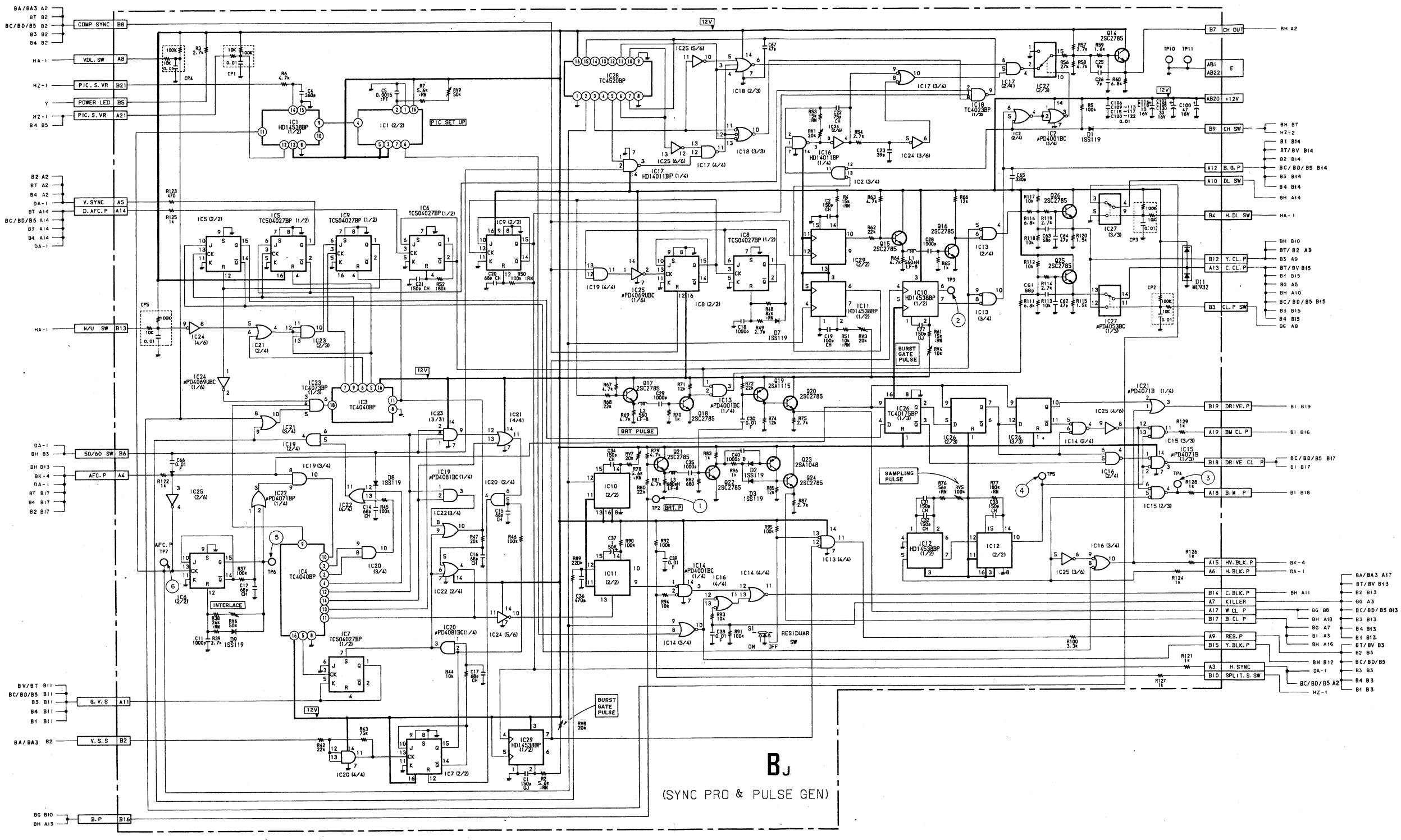


(6) 12Vp-p (H)

BJ board (SYNC PROCESSING & PULSE GEN)

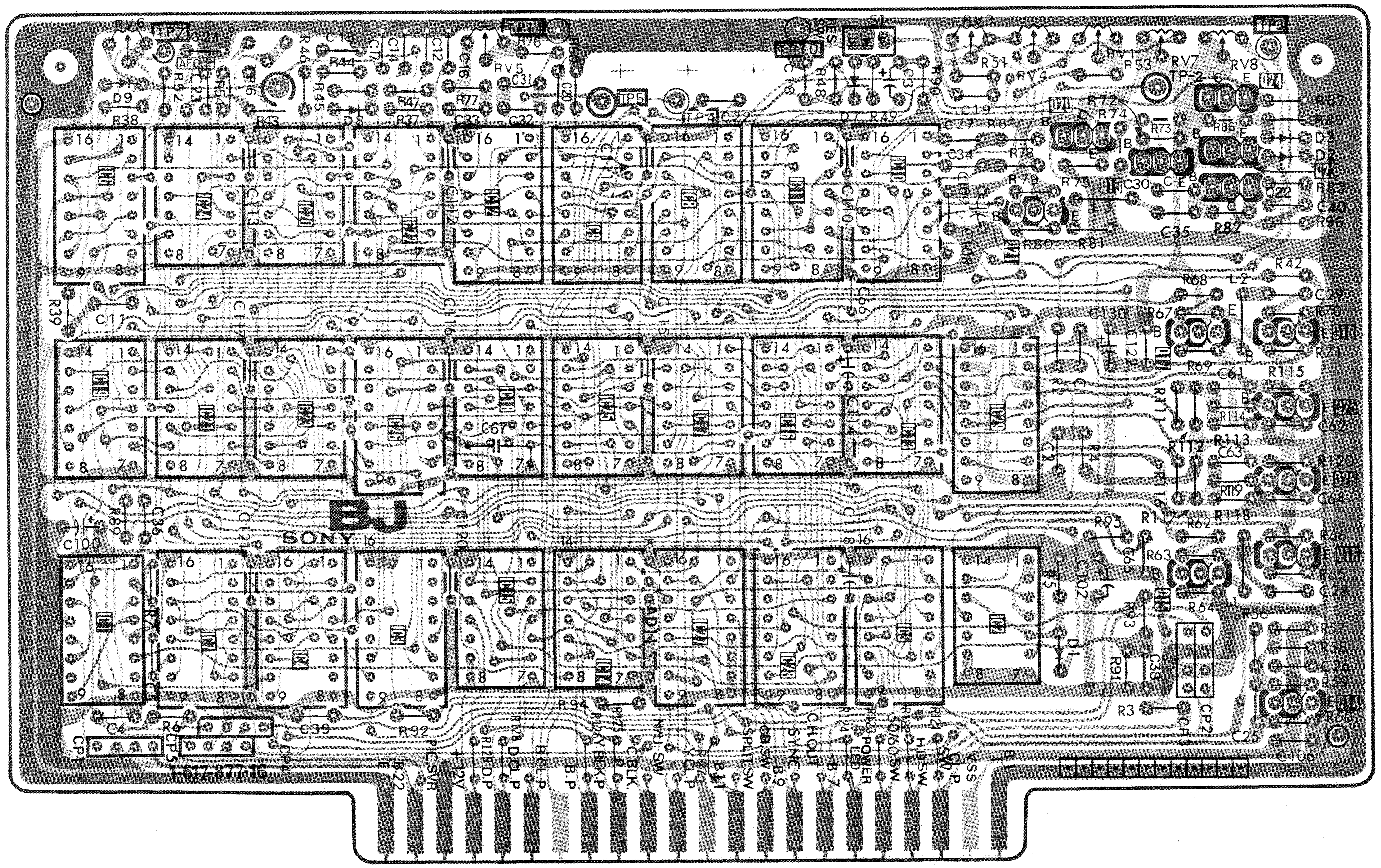


oard (SYNC PROCESSING & PULSE GEN)



BJ board (SYNC PROCESSING & PULSE GEN)

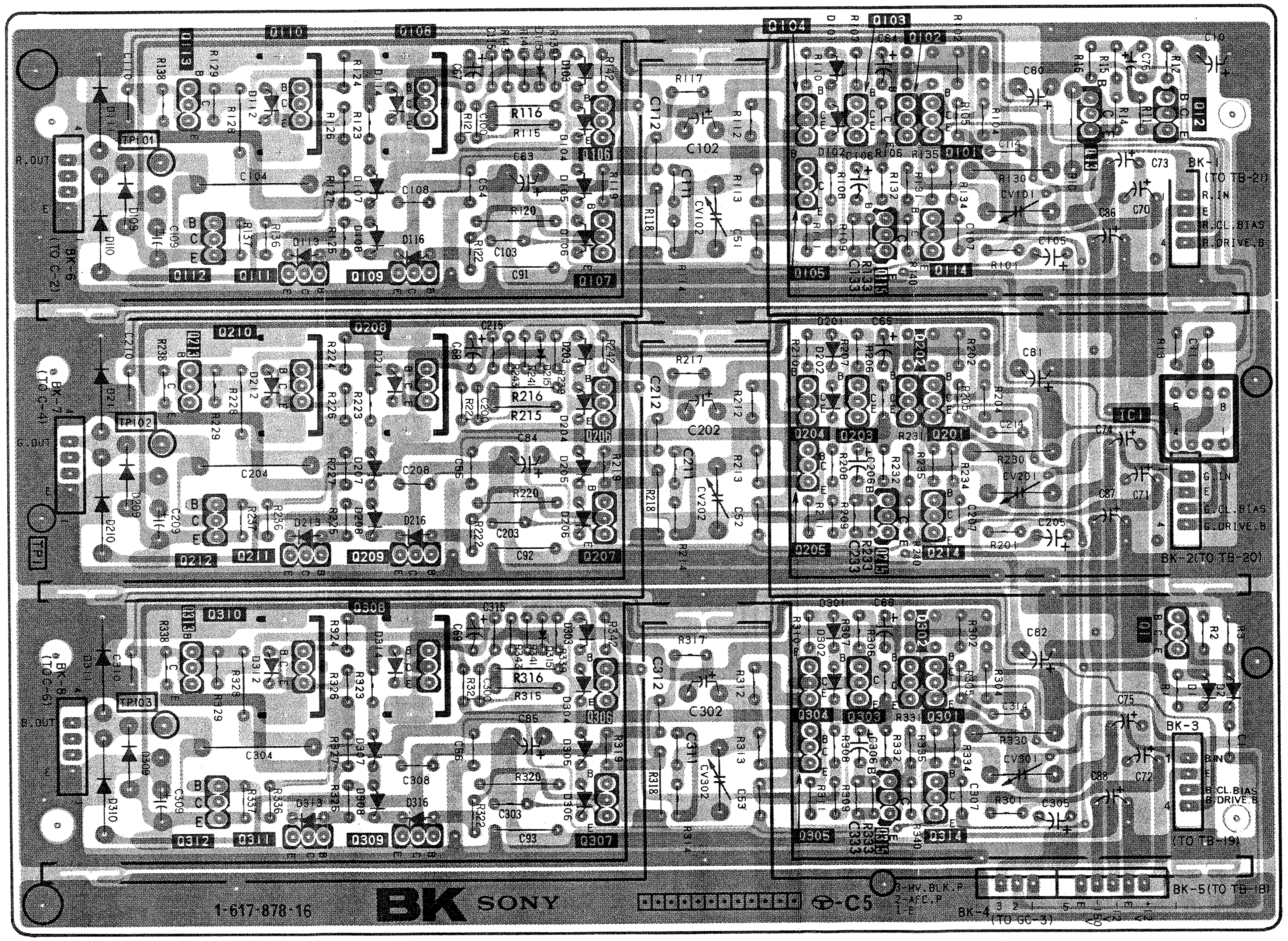
IC	6 19 1	24 21 7	20 23 4	22 26 3	12 18 15	9 25 14	8 17 27	11 16 28	10 13 5	29 2						
Q											21	20	19	17 15	24 23 22	18 25 26 16 14
D	9			8		11			7		1					3 2
TP ADJ	RV6	TP7	TP6		RV5	TP11 TP5	TP4	TP10		RV3	RV4	RV1	RV7 TP2	RV8		TP3



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

BK board (VIDEO OUT AMP)

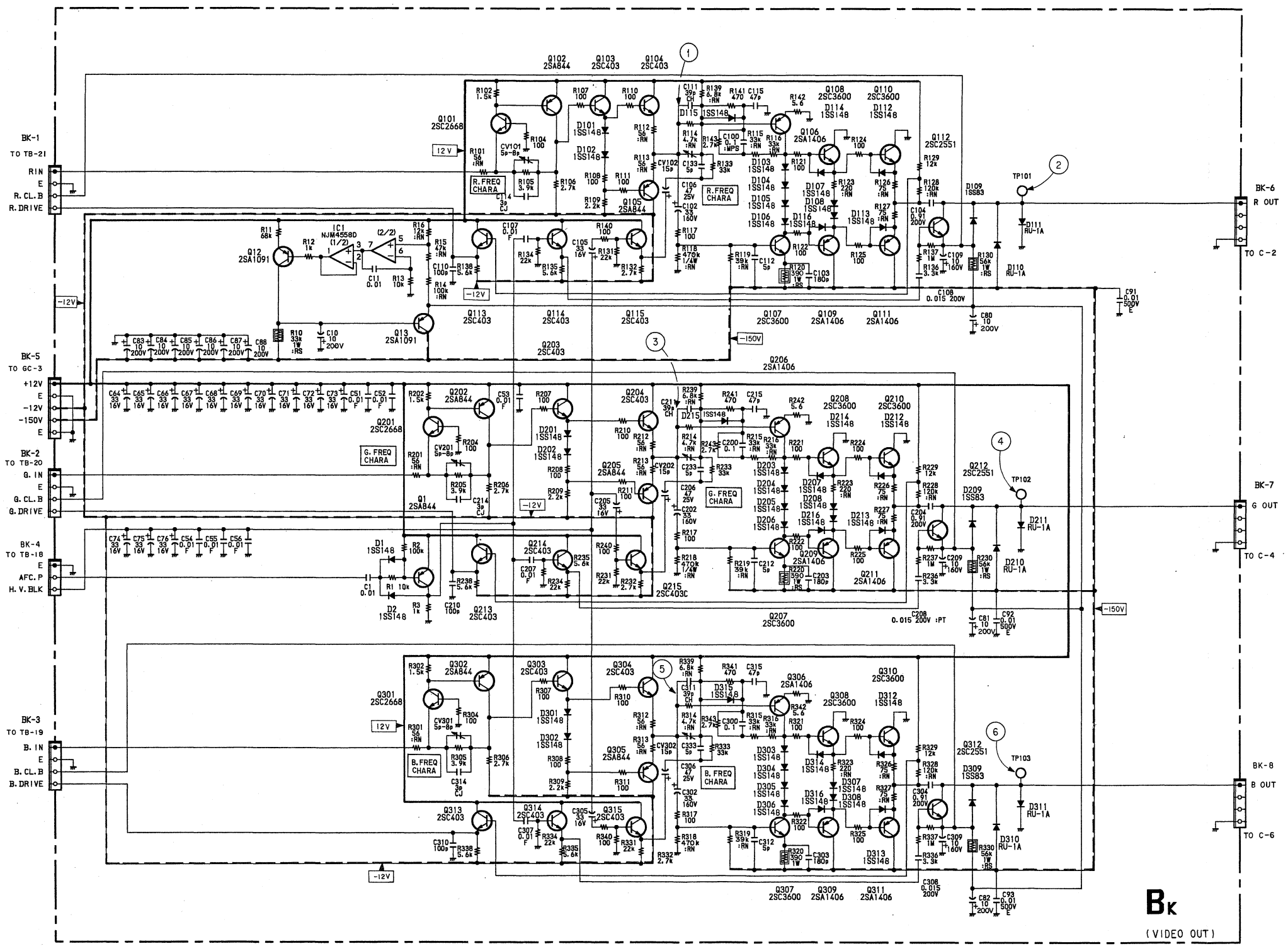
IC										1
Q		113 112 213 212 313 312	110 111 210 211 310 311	108 109 208 209 308 309	106 107 206 207 306 307		104 105 204 205 304 305 103 115 203 215 303 315 102 101 114 202 201 214 302 301 314		13	12 1
D	111 110 109 211 210 209 311 310 309		112 113 212 213 312 313	107 114 108 116 207 214 208 216 307 314 308 316	115 104 103 106 105 215 204 203 206 205 315 304 303 306 305		101 102 201 202 301 302			1 2
TP ADJ	TP1	TP101 TP102 TP103				CV102 CV202 CV302		CV101 CV201 CV301		



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

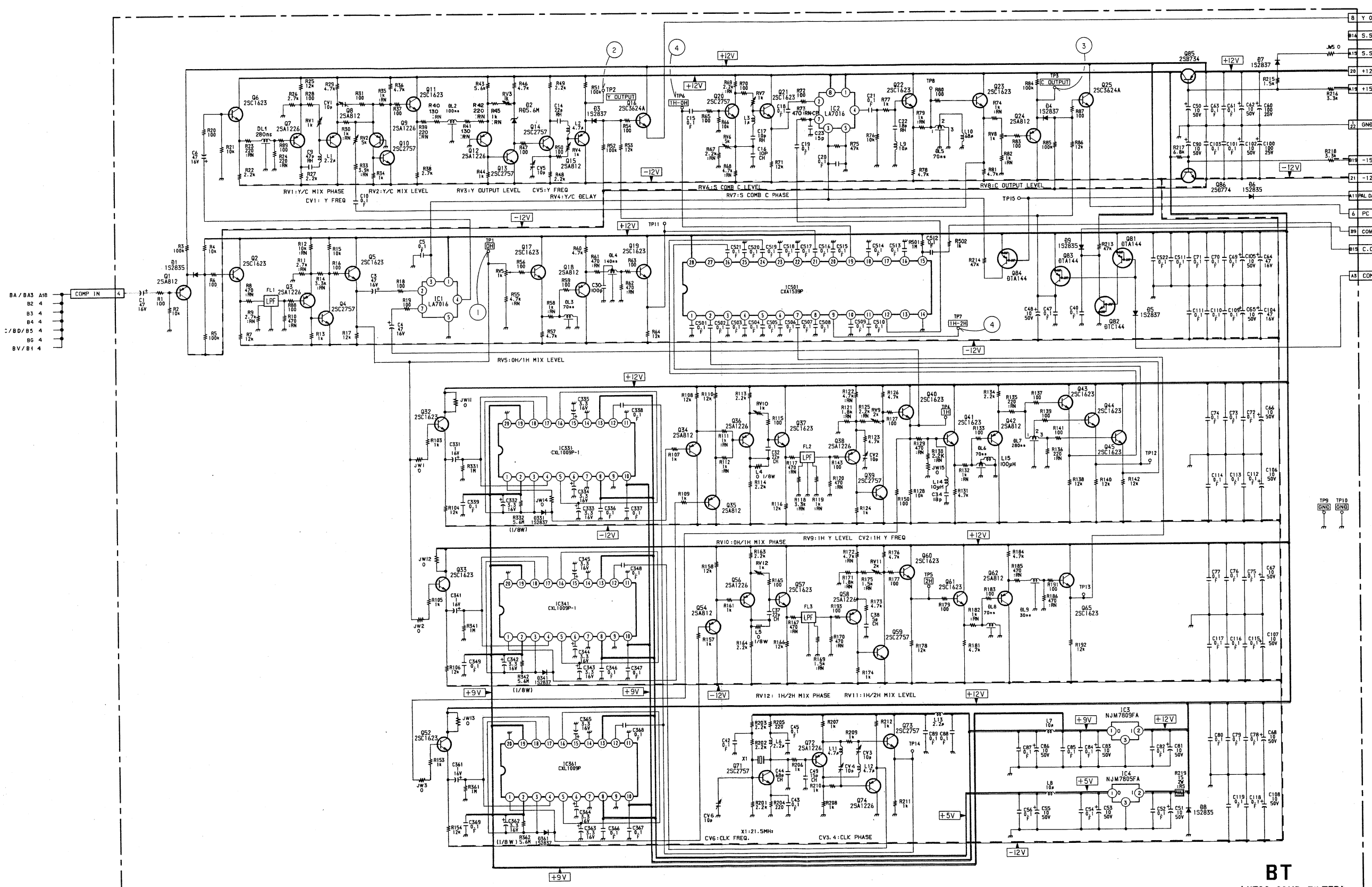
BK BK

BK board (VIDEO OUT AMP)



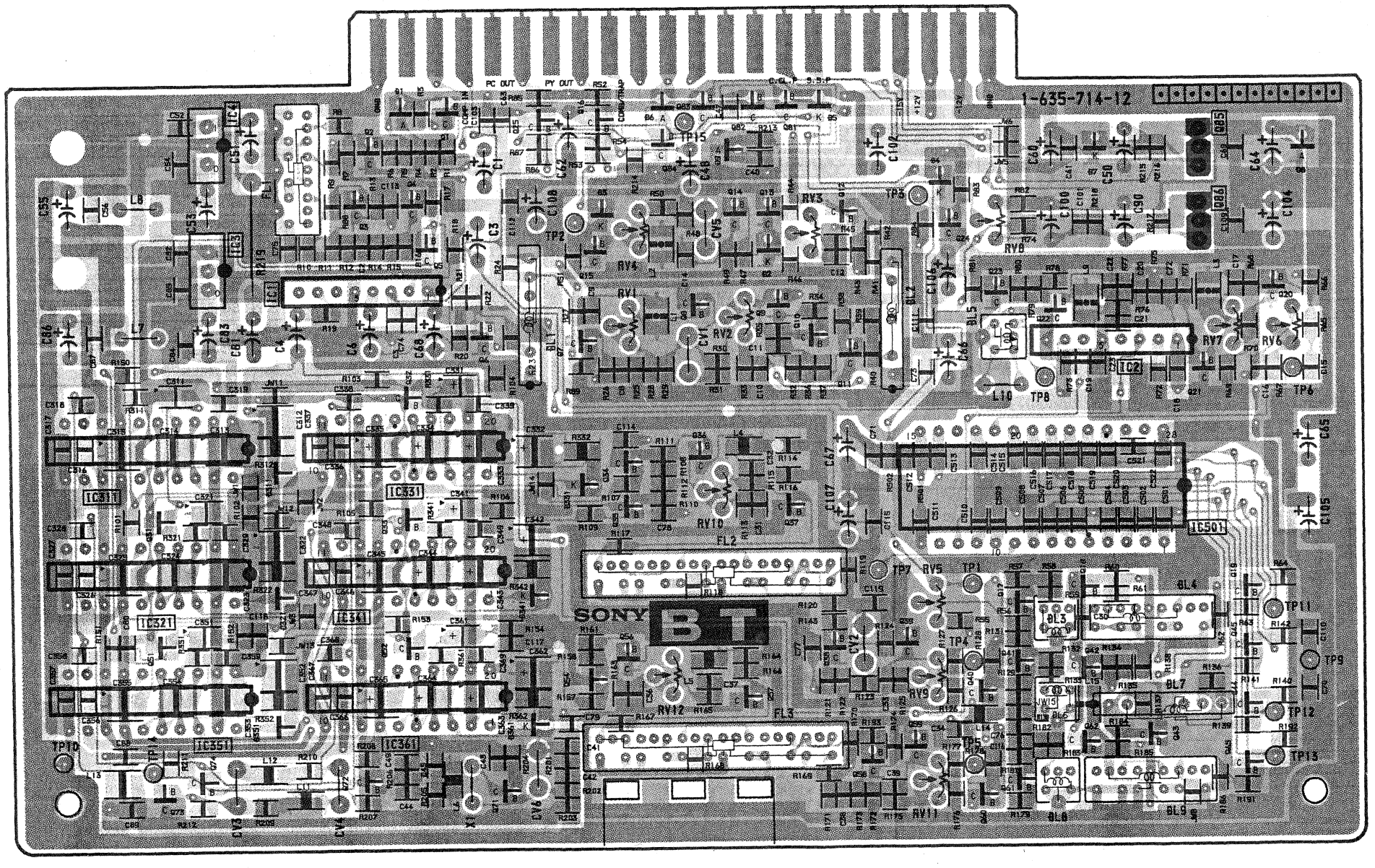
Bk

BT board (3 LINE DYNAMIC COMB FILTER, 2 LINE SIMPLE COMB FILTER, BPF)
(BVM-2811/3011 ONLY)



BT board (3 LINE DYNAMIC COMB FILTER, 2 LINE SIMPLE COMB FILTER, BPF)
(BVM-2811/3011 ONLY)

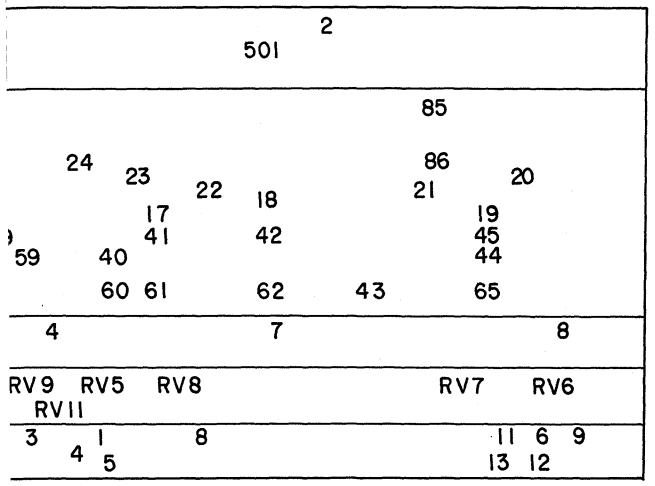
IC	4 3 1 331 341 361 2 501
Q	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 32 33 34 35 36 37 38 39 40 41 42 43 44 45 52 54 56 57 58 59 60 61 62 65 71 72 73 74 83 82 81 84 85 86
D	1 2 3 4 5 6 7 8 9 331 341 361
ADJ	CV1 CV2 CV3 CV4 CV6 RV1 RV2 RV3 RV4 RV5 RV6 RV7 RV8 RV9 RV10 RV11 RV12 CV5
TP	2 3 4 5 6 7 8 9 10 11 12 13 14 15

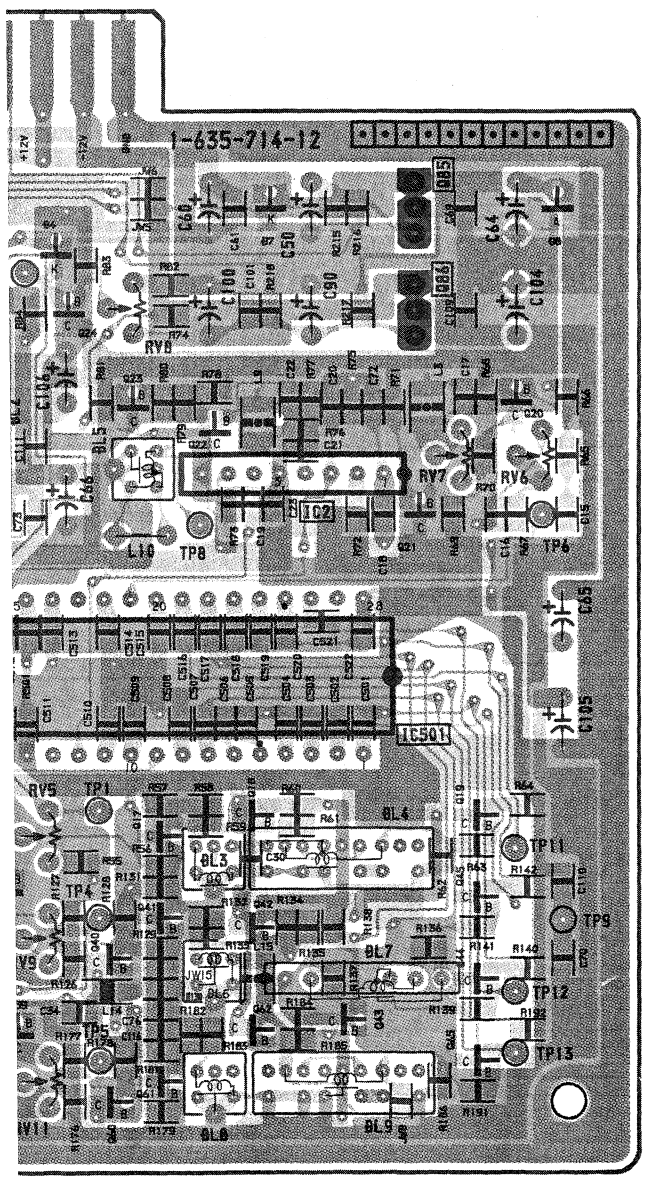


BT BOARD

IC1	LA7816	Y S
2	LA7816	C S
3	NJM7809FA	9V
4	NJM7805FA	5V
331	CXL1009P	CC
341	CXL1009P	CC
361	CXL1009P	CC
501	CXA1539P	CO
Q1	2SA812	BU
2	2SC1623	BU
3	2SA1226	AM
4	2SC2757	AM
5	2SC1623	AM
6	2SC1623	Y
7	2SA1226	Y
8	2SA812	Y
9	2SA1226	Y/
10	2SC2757	Y/
11	2SC1623	Y
12	2SA1226	Y
13	2SC2757	Y
14	2SC2757	Y
15	2SA812	Y
16	2SC3624A	B
17	2SC1623	B
18	2SA812	B
19	2SC1623	B
20	2SC2757	S
21	2SC1623	S
22	2SC1623	B
23	2SC1623	B
24	2SA812	B
25	2SC3624A	B
32	2SC1623	1
33	2SC1623	1
34	2SA812	1
35	2SA812	1
36	2SA1226	1
37	2SC1623	1
38	2SA1226	1
39	2SC2757	1
40	2SC1623	1
41	2SC1623	1
42	2SA812	1
43	2SC1623	1
44	2SC1623	1
45	2SC1623	1
52	2SC1623	1
54	2SA812	1
56	2SA1226	1
57	2SC1623	1
58	2SA1226	1
59	2SC2757	1

- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

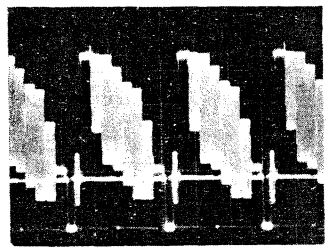




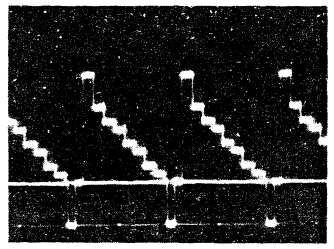
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

BT BOARD

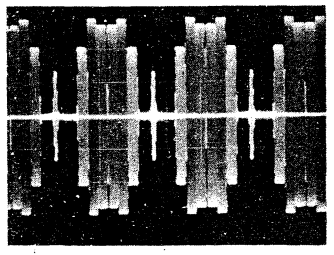
IC1	LA7816	Y SELECT	Q60	2SC1623	AMP
2	LA7816	C SELECT	61	2SC1623	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)
3	NJM7809FA	9V REG	62	2SA812	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)
4	NJM7805FA	5V REG	65	2SC1623	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)
331	CXL1009P	CCD	71	2SC2757	X'TAL OSC
341	CXL1009P	CCD	72	2SA1226	X'TAL OSC
361	CXL1009P	CCD	73	2SC2757	X'TAL OSC
501	CXA1539P	CORRELATION	74	2SA1226	X'TAL OSC
			81	DTA144EK	SW CONTROL
Q1	2SA812	BUFFER	82	DTC144EK	SW CONTROL
2	2SC1623	BUFFER	83	DTA144EK	SW CONTROL
3	2SA1226	AMP	84	DTA144EK	SW CONTROL
4	2SC2757	AMP	85	2SB734	SW CONTROL
5	2SC1623	AMP	86	2SD774	SW CONTROL
6	2SC1623	Y DELAY			
7	2SA1226	Y DELAY	D1	1S2835	SW
8	2SA812	Y DELAY	2	RD5.6MB2	DC SHIFT
9	2SA1226	Y/C MIX	3	1S2837	SW
10	2SC2757	Y/C MIX	4	1S2837	SW
11	2SC1623	Y AMP & BUFFER	5	1S2837	SW CONTROL
12	2SA1226	Y AMP & BUFFER	6	1S2835	SW CONTROL
13	2SC2757	Y AMP & BUFFER	7	1S2837	SW CONTROL
14	2SC2757	Y DELAY	8	1S2835	SW CONTROL
15	2SA812	Y DELAY	9	1S2835	SW CONTROL
16	2SC3624A	BUFFER & SW	331	1S2837	CLAMP
17	2SC1623	BPF 140 nsec(NTSC)110 nsec(PAL)	341	1S2837	CLAMP
18	2SA812	BPF 140 nsec(NTSC)110 nsec(PAL)	361	1S2837	CLAMP
19	2SC1623	BPF 140 nsec(NTSC)110 nsec(PAL)			
20	2SC2757	S COMB C LEVEL, PHASE			
21	2SC1623	S COMB C LEVEL, PHASE			
22	2SC1623	BPF, BUFFER			
23	2SC1623	BPF, BUFFER			
24	2SA812	BPF, BUFFER			
25	2SC3624A	BUFFER & SW			
32	2SC1623	1H DELAY(NTSC)2H DELAY(PAL)			
33	2SC1623	1H DELAY(NTSC)2H DELAY(PAL)			
34	2SA812	1H DELAY(NTSC)2H DELAY(PAL)			
35	2SA812	1H DELAY(NTSC)2H DELAY(PAL)			
36	2SA1226	1H DELAY(NTSC)2H DELAY(PAL)			
37	2SC1623	AMP			
38	2SA1226	AMP			
39	2SC2757	AMP			
40	2SC1623	AMP			
41	2SC1623	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)			
42	2SA812	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)			
43	2SC1623	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)			
44	2SC1623	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)			
45	2SC1623	BPF 140 ns DELAY(NTSC)110 ns DELAY(PAL)			
52	2SC1623	1H DELAY(NTSC)2H DELAY(PAL)			
54	2SA812	1H DELAY(NTSC)2H DELAY(PAL)			
56	2SA1226	1H DELAY(NTSC)2H DELAY(PAL)			
57	2SC1623	AMP			
58	2SA1226	AMP			
59	2SC2757	AMP			



① *1.1 Vp-p(H)*



② *0.95 Vp-p(H)*

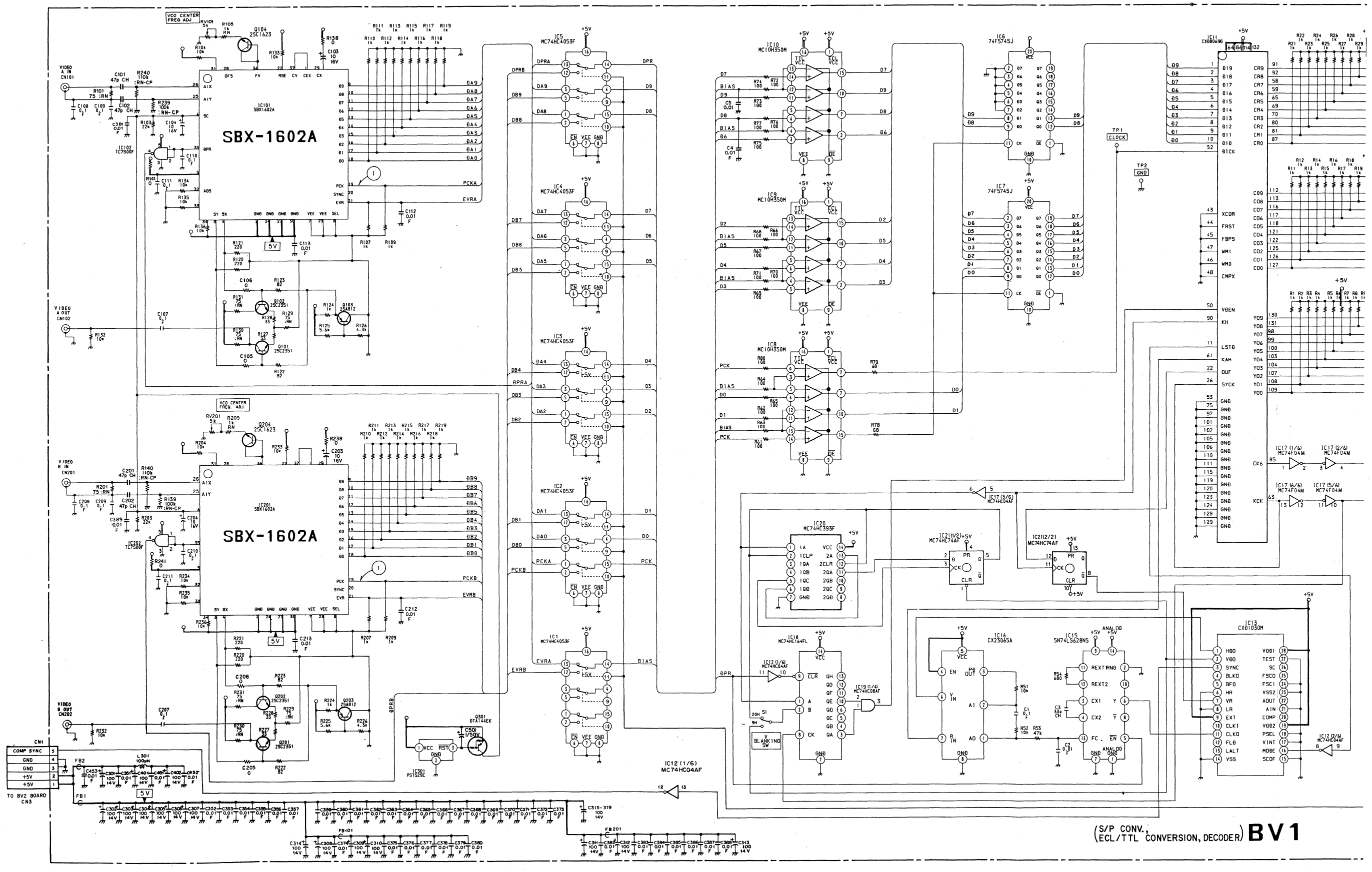


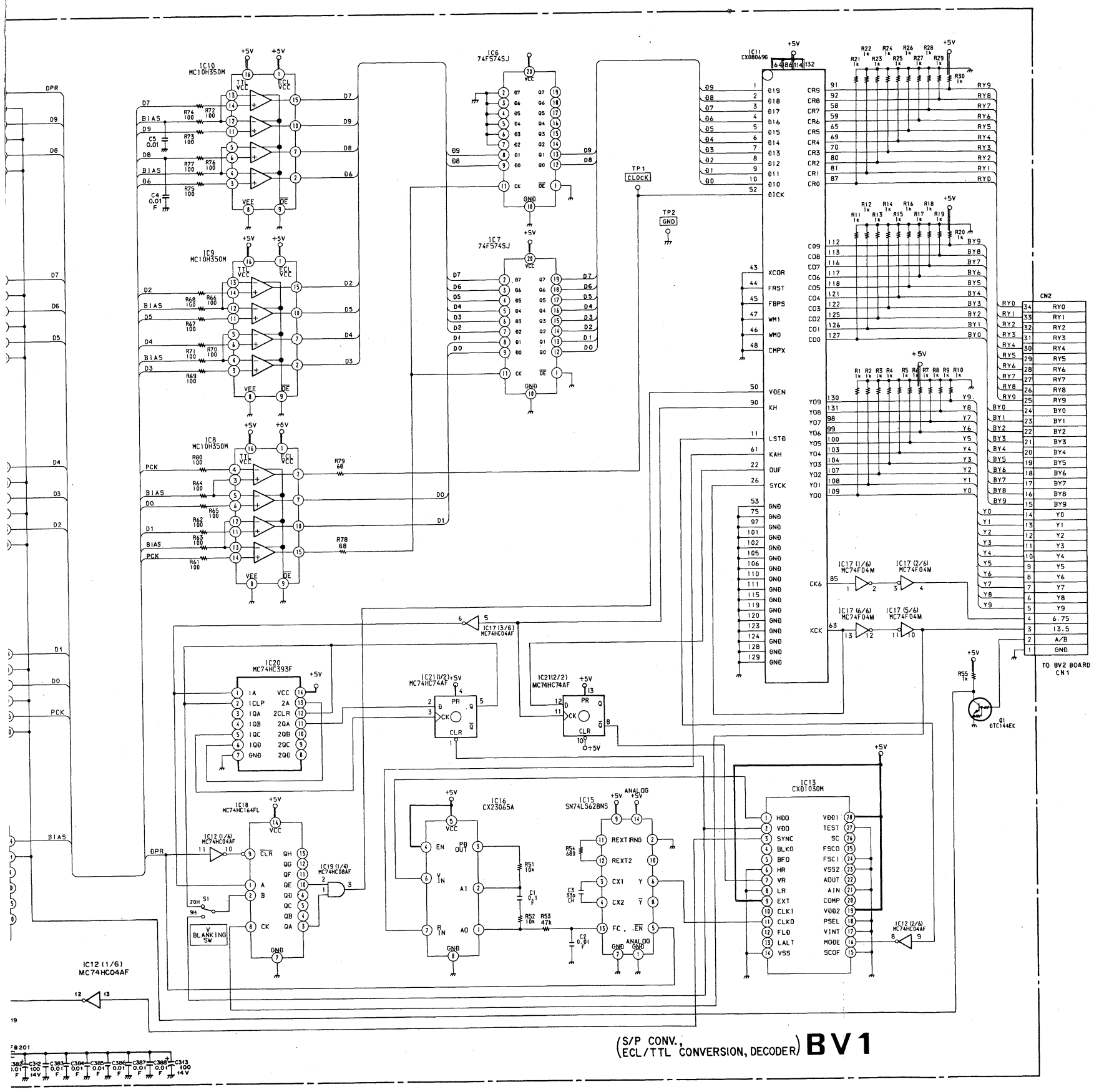
③ *0.58 Vp-p(H)*

④ *1.9 Vp-p(H)*

BV1 BV1

BV1 board (S/P CONVERTER, CABLE DRIVER, ECL/TTL CONV, D-1 DECODER, COMP SYNC GEN)
(BVM-2811 ONLY)

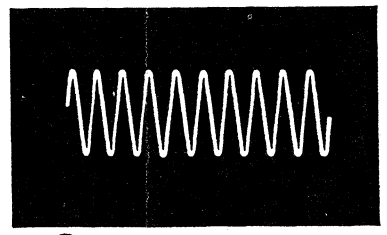




(S/P CONV., ECL/TTL CONVERSION, DECODER) **BV1**

BV1 BOARD

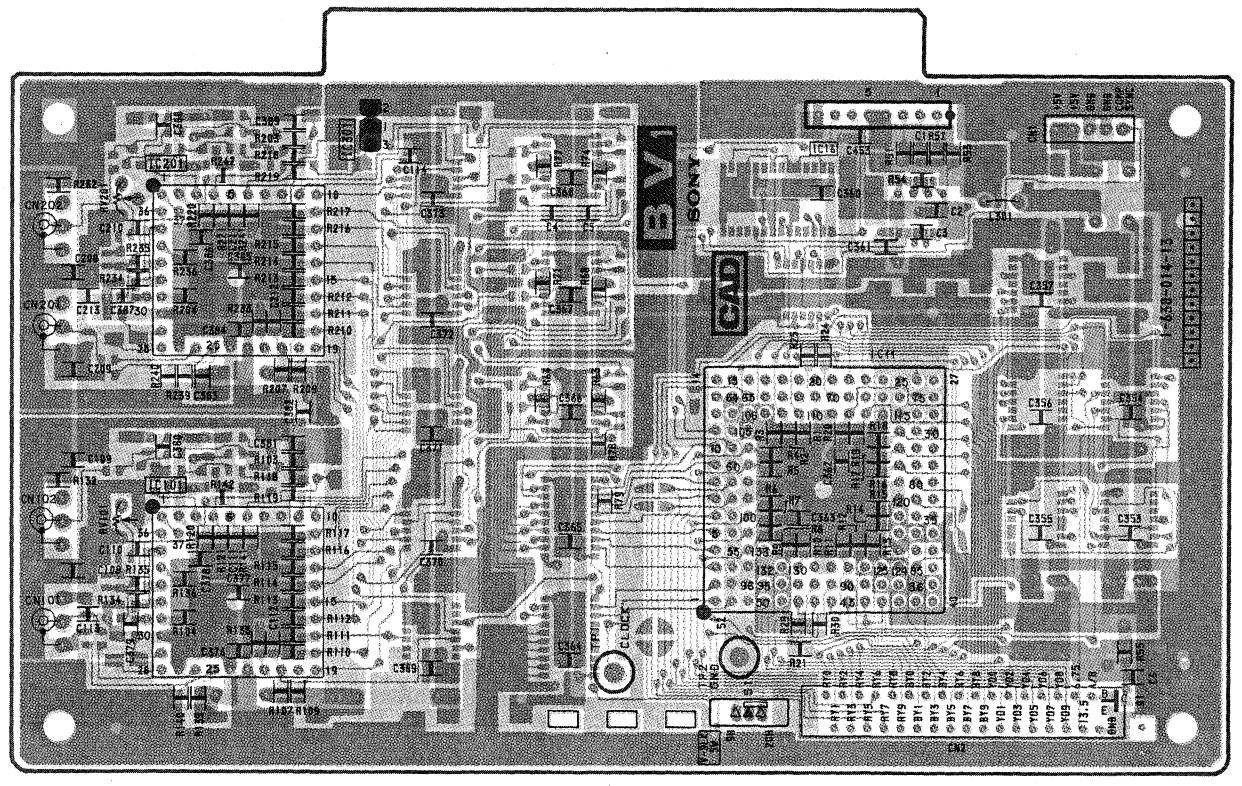
IC 1	MC74HC4053F	A/B SWITCH
2	MC74HC4053F	A/B SWITCH
3	MC74HC4053F	A/B SWITCH
4	MC74HC4053F	A/B SWITCH
5	MC74HC4053F	A/B SWITCH
6	74F574SJ	BUFFER
7	74F574SJ	BUFFER
8	MC10H350M	ECL→TTL CONVERTER
9	MC10H350M	ECL→TTL CONVERTER
10	MC10H350M	ECL→TTL CONVERTER
11	CXD8069BG	D-1 DECODER
12	MC74HC04AF	INVERTER
13	CXD1030M	SYNC GENERATOR
15	SN74LS638NS	VCO
16	CX23065A	PHASE COMPARATOR
17	MC74F04M	INVERTER
18	MC74HC164FL	H-V BLANKING GEN
19	MC74HC08AF	AND GATE
20	MC74HC393F	H-V BLANKING GEN
21 (1/2)	MC74HC74AF	H-V BLANKING GEN
21 (2/2)	MC74HC74AF	V.RESET
101	SBX1602A	S/P CONVERTER
102	TC7S00F	INPUT DETECTION
201	SBX1602A	S/P CONVERTER
202	TC7S00F	INPUT DETECTION
301	PST529C	RESET
Q 1	DTC144EK	A/B CONTROL
101	2SC2351	CABLE DRIVER
102	2SC2351	CABLE DRIVER
103	2SA812	CABLE DRIVER
104	2SC1623	
201	2SC2351	CABLE DRIVER
202	2SC2351	CABLE DRIVER
203	2SA812	CABLE DRIVER
204	2SC1623	
301	DTA144EK	RESET



① 2.5 Vp-p 27MHz

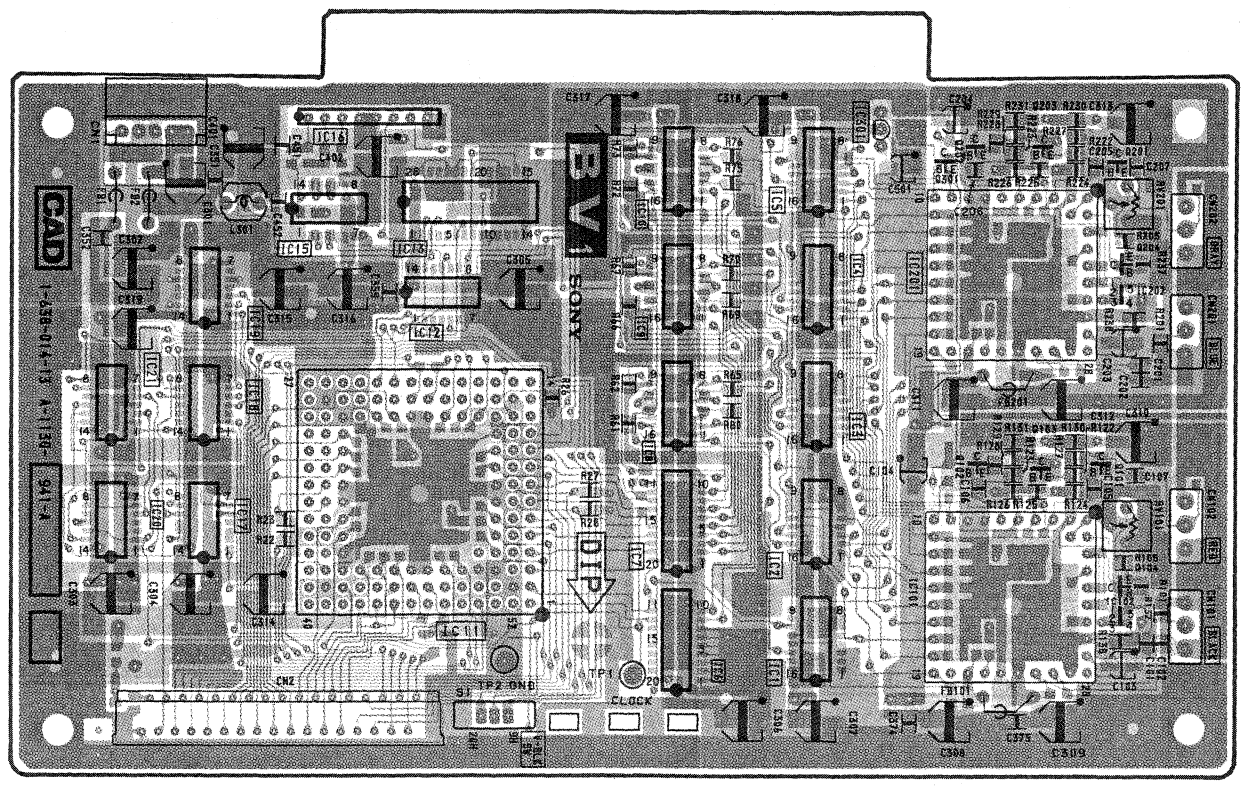
BV1 board (S/P CONVERTER, CABLE DRIVER, ECL/TTL CONV, D-1 DECODER, COMP SYNC GEN)
(BVM-2811 ONLY)

IC	201 101 16 11	IC
ADJ	RV102 RV101	ADJ
TP	1 2	TP



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

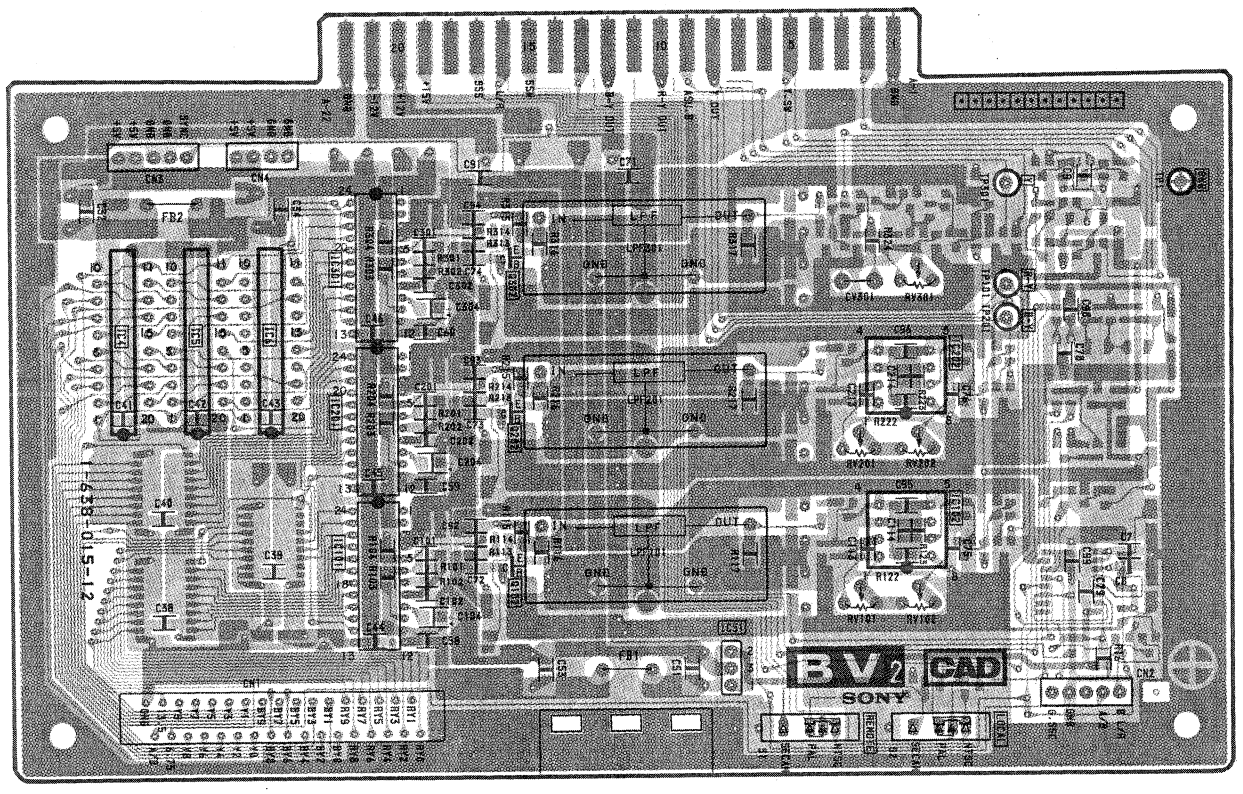
IC	16 15 13 19 12 21 18 11 20 17 10 5 9 4 8 3 7 2 6 1 301 201 202 101 102	IC
Q	202 203 201 204 101 102 103 104	Q
ADJ	RV102 RV101	ADJ
TP	2 1	TP



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

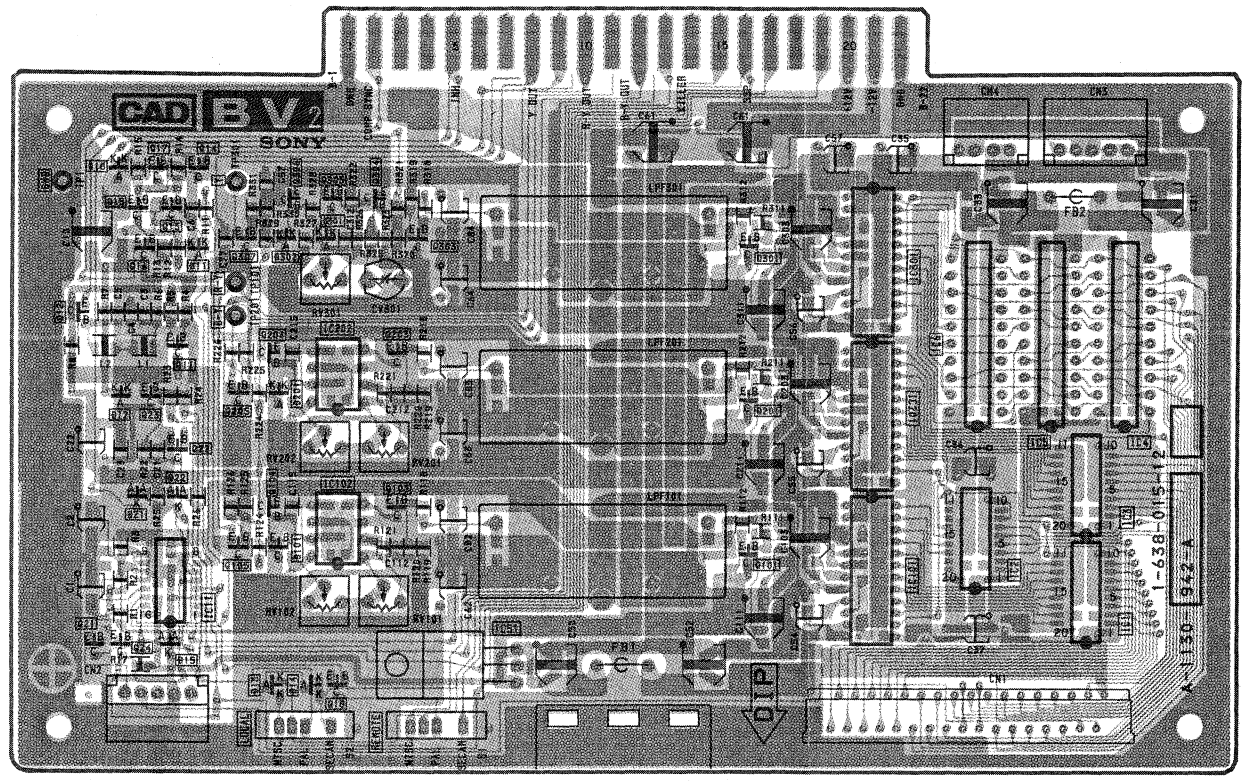
BV2 board (BUFFER & DELAY, D/A CONV, Y AMP, R-Y/B-Y AMP & DELAY)
(BVM-2811 ONLY)

IC	4 5 6 301 201 101 51 202 102	IC
Q	302 202 102	Q
ADJ	CV301 RV201 RV101 RV301 RV202 RV102	ADJ
TP	301 101 201 1	TP



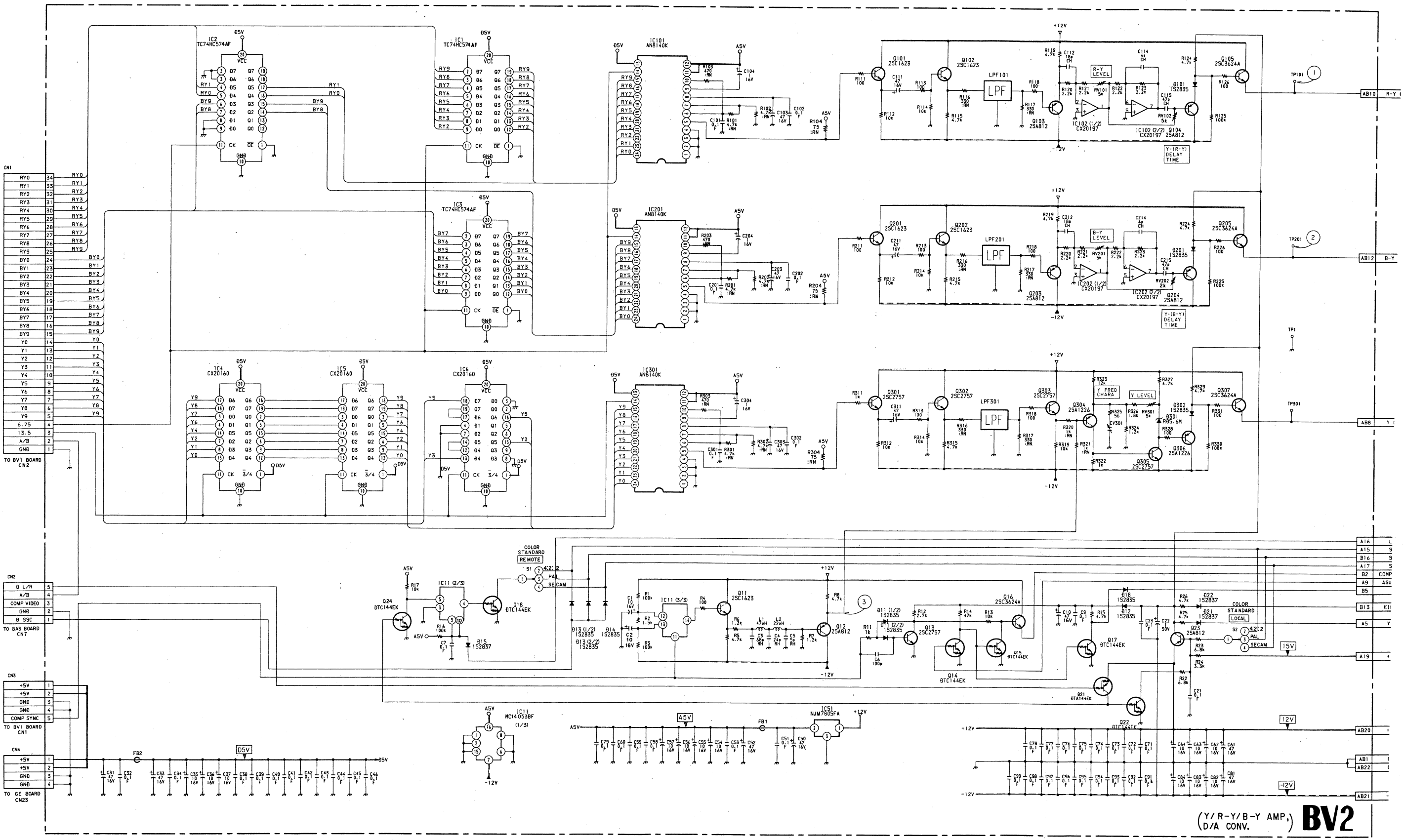
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

IC	202 102 11 51 301 201 101 6 5 4 3 2 1	IC
Q	17 14 306 305 304 15 13 303 12 16 11 204 203 301 23 205 201 22 104 18 103 21 24 101	Q
D	18 11 302 301 12 201 101 21 22 15 13 14	D
ADJ	RV301 CV301 RV202 RV201 RV102 RV101	ADJ
TP	1 301 101 201	TP

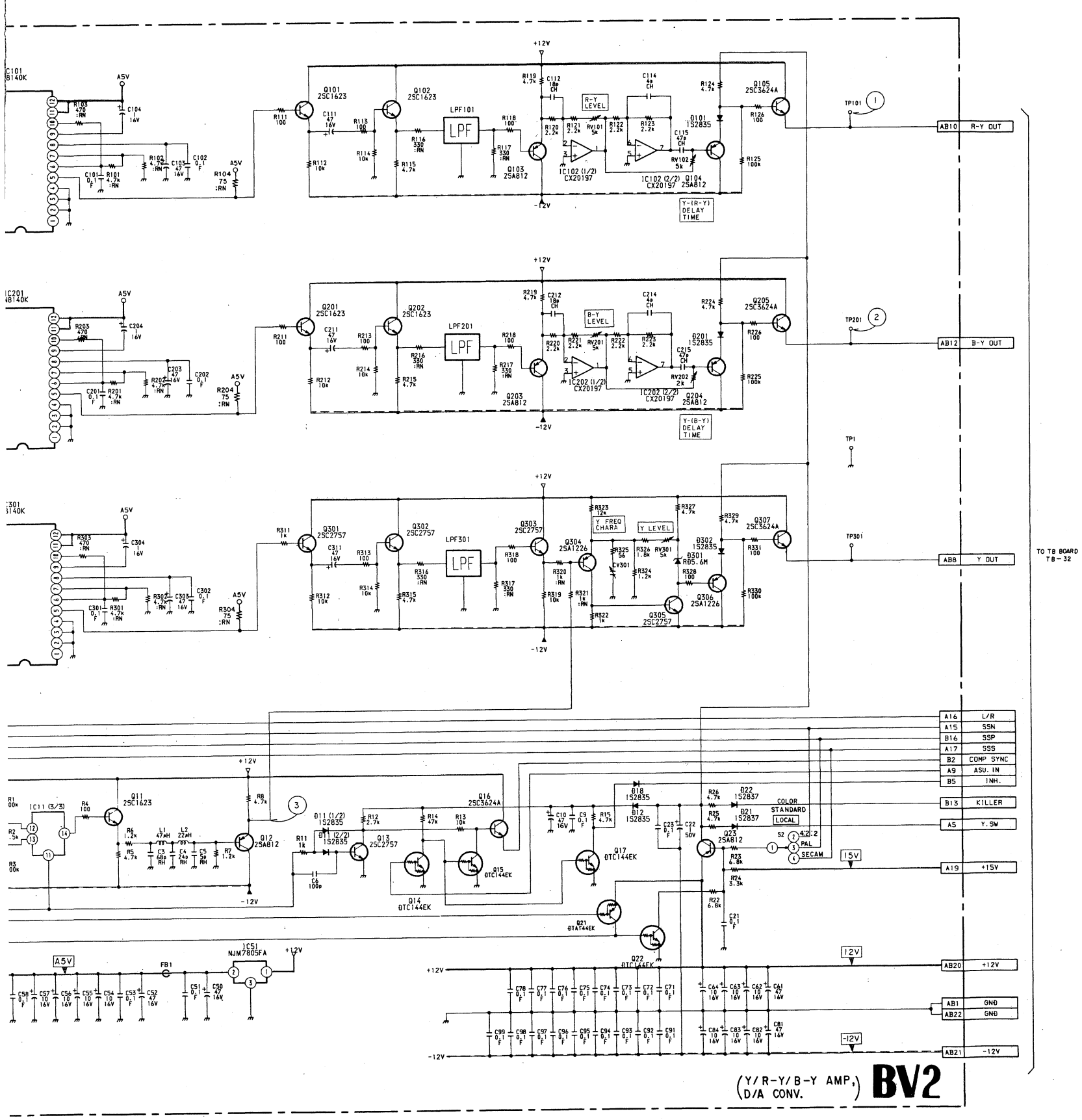


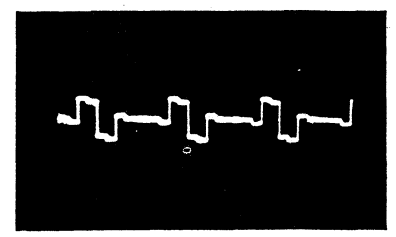
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

BV2 board (BUFFER & DELAY, D/A CONV, Y AMP, R-Y/B-Y AMP & DELAY)
(BVM-2811 ONLY)

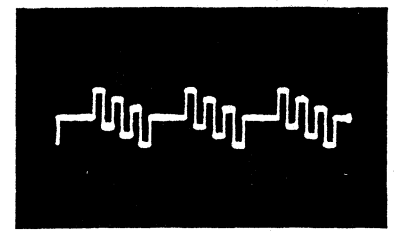


(Y/R-Y/B-Y AMP, D/A CONV.) **BV2**

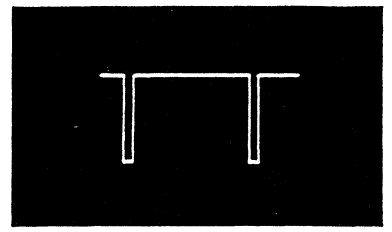




(1) *3Vp-p (H)*



(2) *3.8Vp-p (H)*



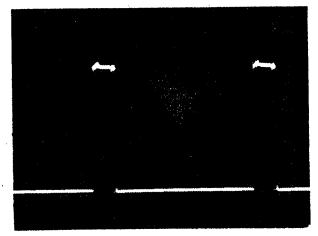
(3) *1Vp-p (H)*

BV2 BOARD

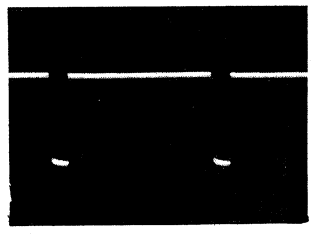
IC 1	TC74HC574AF	BUFFER
2	TC74HC574AF	BUFFER
3	TC74HC574AF	BUFFER
4	CX20160	BUFFER&DELAY
5	CX20160	BUFFER&DELAY
6	CX20160	BUFFER&DELAY
11	MC14053BF	SYNC PROCESS& LOCAL-MODE CONTROL
51	NJM7805FA	5V REG
101	AN8140K	D/A CONVERTER
102	CX20197	R-Y DELAY
201	AN8140K	D/A CONVERTER
202	CX20197	B-Y DELAY
301	AN8140K	D/A CONVERTER
Q 11	2SC1623	SYNC PROCESS
12	2SA812	SYNC PROCESS
13	2SC2757	SYNC PROCESS
14	DTC144EK	SYNC PROCESS
15	DTC144EK	SYNC PROCESS
16	2SC3624A	SYNC PROCESS
17	DTC144EK	SYNC PROCESS
18	DTC144EK	LOCAL-MODE CONTROL
21	DTC144EK	SYSTEM CONTROL
22	DTC144EK	SYSTEM CONTROL
23	2SA812	SYSTEM CONTROL
24	DTA144EK	LOCAL-MODE CONTROL
101	2SC1623	BUFFER
102	2SC1623	BUFFER
103	2SA812	R-Y AMP&DELAY
104	2SA812	R-Y AMP&DELAY
105	2SC3624A	BUFFER
201	2SC1623	BUFFER
202	2SC1623	BUFFER
203	2SA812	B-Y AMP&DELAY
204	2SA812	B-Y AMP&DELAY
205	2SC3624A	BUFFER
301	2SC2757	BUFFER
302	2SC2757	BUFFER
303	2SC2757	Y AMP
304	2SA1226	Y AMP
305	2SC2757	Y AMP
306	2SA1226	Y AMP
307	2SC3624A	BUFFER
D 11	1S2835	SYNC PROCESS
12	1S2835	SYSTEM CONTROL
13	1S2835	LOCAL-MODE CONTROL
14	1S2835	LOCAL-MODE CONTROL
15	1S2837	LOCAL-MODE CONTROL
18	1S2835	
21	1S2837	SYSTEM CONTROL
22	1S2837	SYSTEM CONTROL
101	1S2835	R-Y AMP&DELAY
201	1S2835	R-Y AMP&DELAY
301	RD5.6M-B2	Y AMP
302	1S2835	Y AMP

DA BOARD

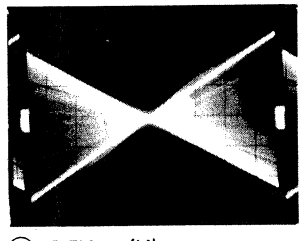
IC 1	MB84027B	H. BLK. WIDTH
2	HD14011BP	H. DELAY. POSITION
3	TC4093BP	BUFFER
4	CX-158	H. OSC AFC
5	TL082CP	H. LIN. GEN.
6	TL082CP	H. LIN. GEN.
7	MC1496P	H. LIN. MOD.
8	NJM2903D	1/2H, 1/2V. GEN.
9	TL082CP	H. BLK. PHASE
10	NJM2903D	T&B. H. PHASE
11	TL082CP	T&B PIN. GEN.
12	MC1496P	T&B. PIN MOD.
13	uPD4066BC	50/60 SW.
14	uPD4066BC	DEF. LEVEL. SW
15	uPD4066BC	DEF. LEVEL. SW
16	uPD4066BC	DEF. LEVEL. SW
17	NJM4558D	BUFFER
18	NJM4558D	50/60 SELECTOR
19	NJM4558D	V. SAWTOOTH. GEN.
20	NJM4558D	SIDE. PIN. GEN.
21	NJM4558D	SIDE. PIN. GEN.
22	NJM4558D	V.SAWTOOTH GEN.
23	NJM4558D	BUFFER
24	LM7812CT	+12V REG.
25	LM2912CT	–15V REG.
26	TL082CP	BUFFER
Q 1	DTC144ES	H. OSC. SW
2	2SC2785	H. LIN. GEN
3	2SC2785	H. LIN. GEN
4	2SC2785	1/2H. P. GEN.
5	2SC2785	H. BLK. GEN.
6	2SC2785	H. BLK. GEN.
7	2SC2785	T&B PIN. PHASE
8	2SC2785	T&B PIN. GEN.
9	2SC3068	T&B PIN. GEN.
10	2SC2785	T&B PIN. MOD.
12	DTC144ES	50/60 SW
13	DTC144ES	SCAN. SW
14	DTC144ES	SCAN. SW
15	DTC144ES	SCAN. SW
16	DTC144ES	SCAN. SW
17	DTC144ES	50/60 SW
18	2SC2785	BUFFER
19	2SC2785	V. SAW. GEN
20	2SC2785	V. SAW. CLIP
21	2SC2785	SIDE PIN GEN
22	2SC2785	SIDE PIN GEN
23	2SC2785	SIDE PIN GEN
24	2SC2785	V. SAW GEN.
31	DTC144ES	V. LIN GEN
32	DTC144ES	H.LIN SW
D 1	1SS148	H.DELAY SW
2	1SS148	H.DELAY SW
3	RD6.8EB3	CLIPPER
4	RD6.8EB3	CLIPPER
5	RD12E-B3	50/60 SW
6	RD12E-B3	SCAN SW
7	1SS148	SCAN SW
8	1SS148	SCAN SW
9	RD7.5E-B3	+7.5V REG.
10	RD7.5E-B3	–7.5V REG.
11	RD15E-B3	50/60 SW.
12	RD5.6E-B2	V. SAW. CLIP
13	1SS148	V. SAW. CLIP
14	1SS148	V. SAW. CLIP
15	1SS148	AFC. CLIP
18	1SS148	PROT
19	1SS148	
31	WG713A	PROT



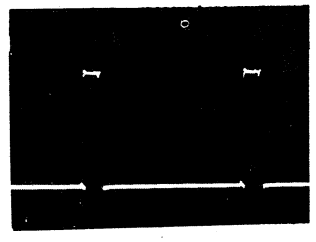
(1) 14Vp-p (H)



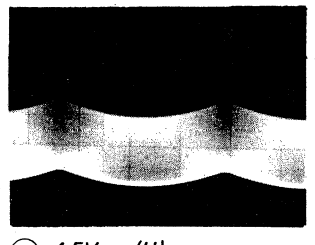
(4) 10Vp-p (H)



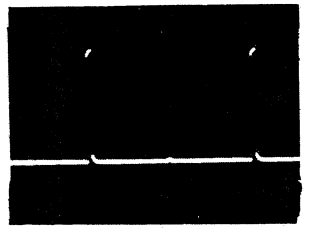
(7) 2.5Vp-p (V)



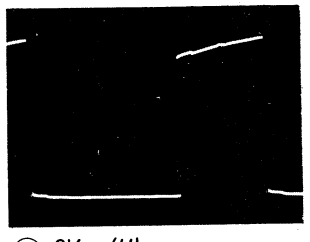
(2) 14Vp-p (H)



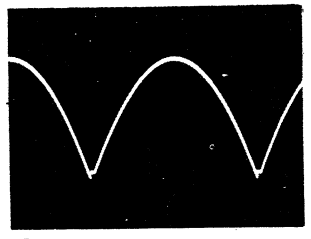
(5) 4.5Vp-p (H)



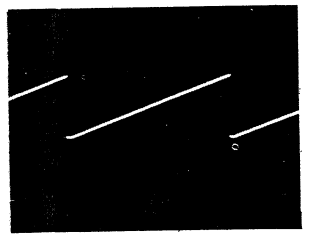
(8) 12Vp-p (V)



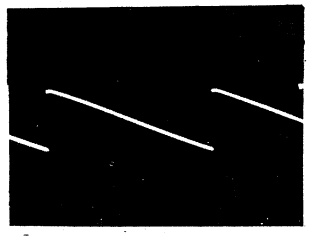
(3) 9Vp-p(H)



(6) 1.8Vp-p (V)

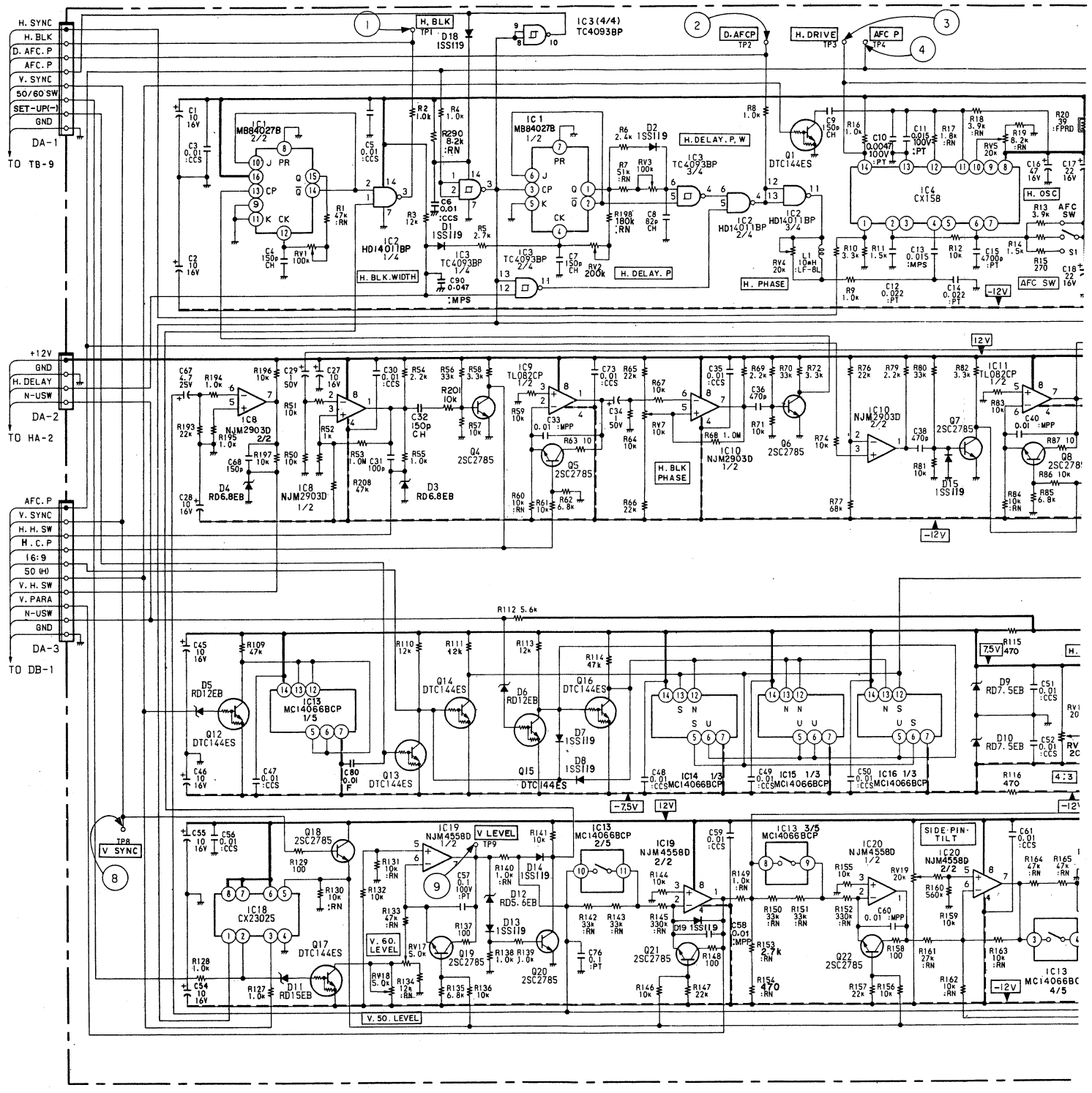


(9) 12Vp-p(V)

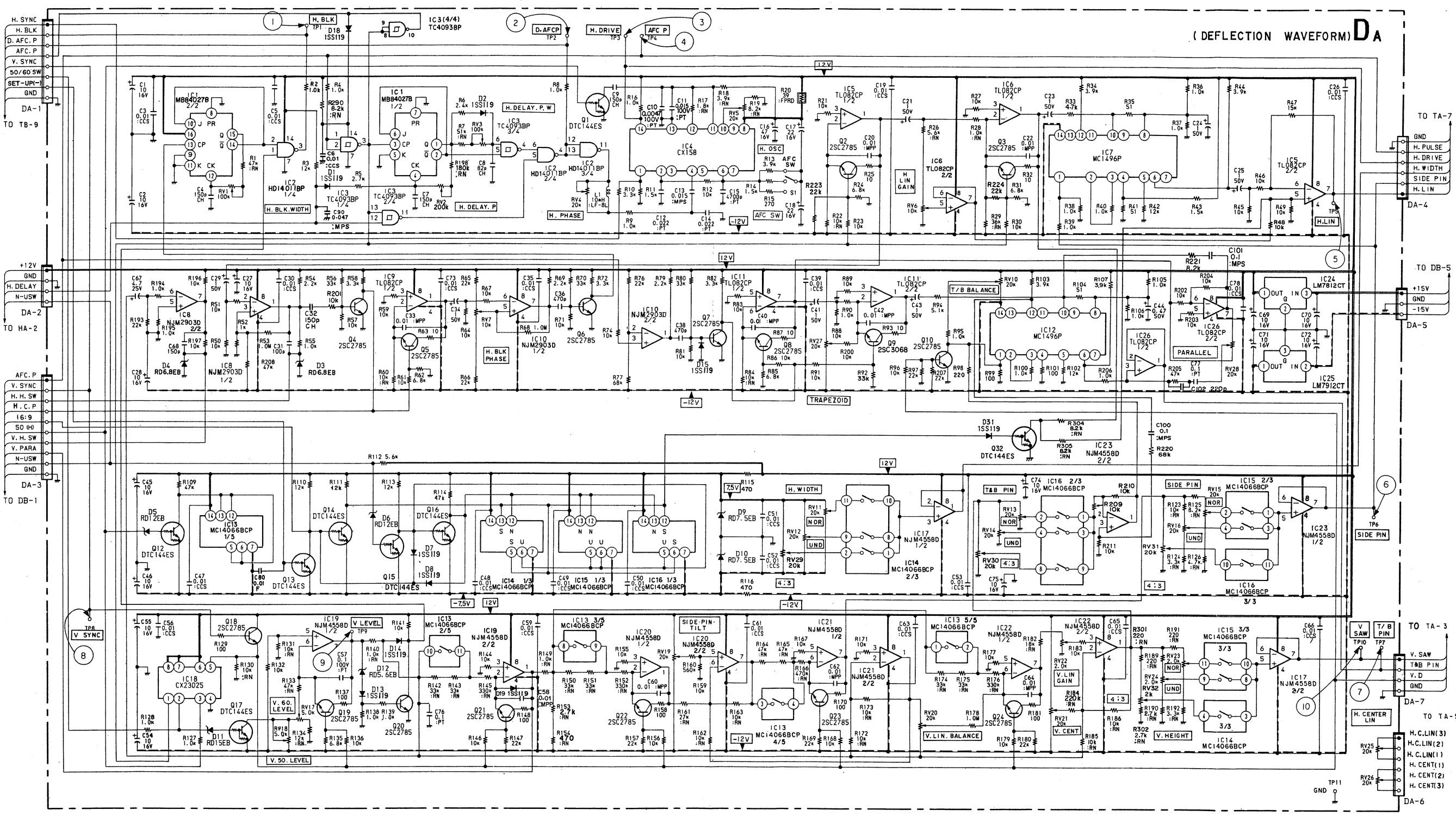


(10) 8Vp-p (V)

DA board (DEFLECTION WAVEFORM)



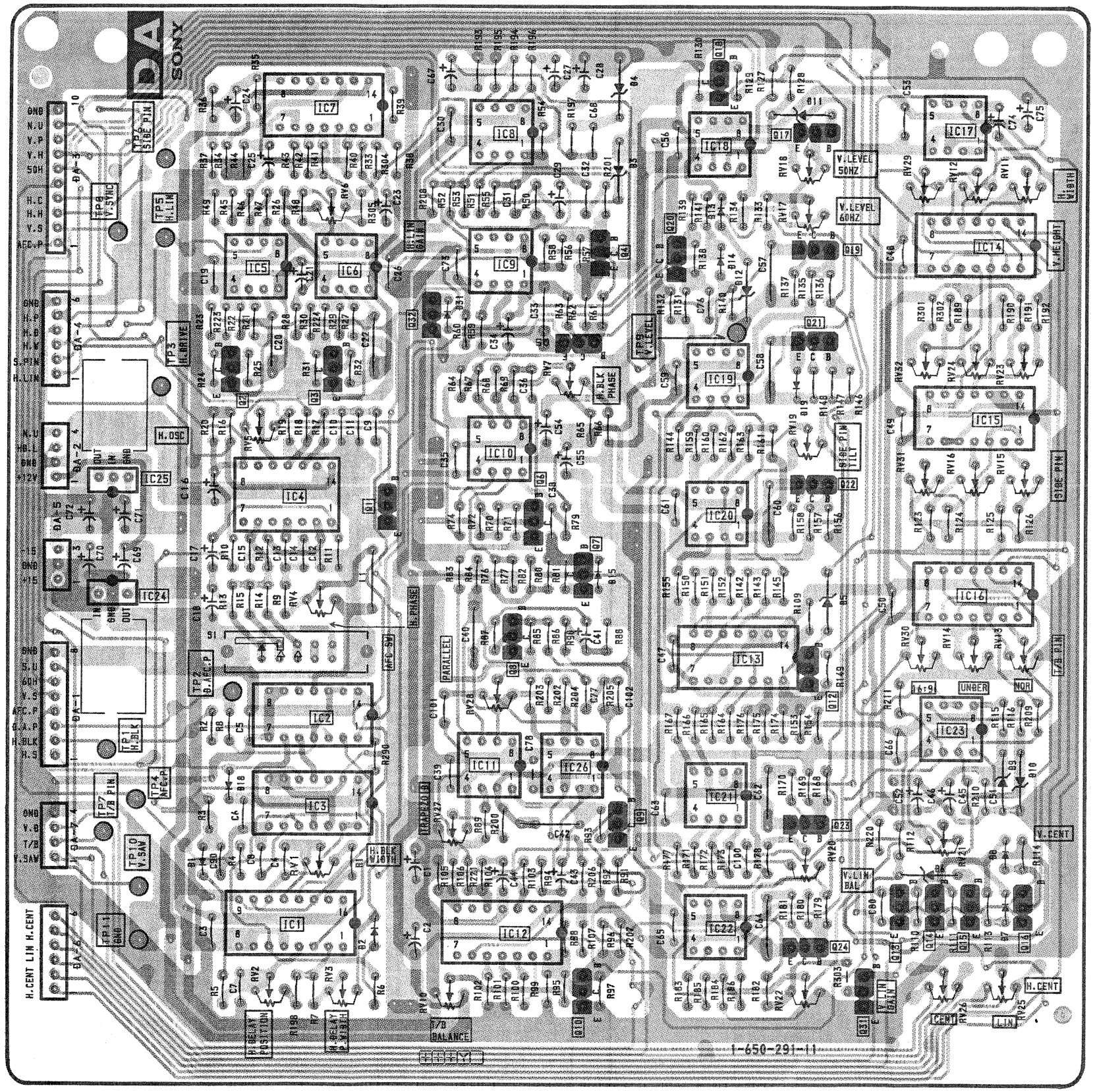
DA board (DEFLECTION WAVEFORM)



DA board (DEFLECTION WAVEFORM)

IC	Q	D	TP ADJ
7 17 8 18 14 9 5 6 19 15 10 25 4 20 24 16 13 2 23 11 26 21 3	18 17 4 20 19 32 5 21 2 3 22 1 6 7 8 12 9 23 13 14 15 16 24 10	4 11 3 13 14 12 31 19 15 5 9 10 18 1 6 8 7 2	TP6 RV18 RV29 RV12 RV11 RV6 TP8 RV17 TP5 TP9 RV32 RV24 RV23 TP3 RV7 RV5 RV19 RV31 RV16 RV15 RV4 RV30 RV14 RV13 TP2 RV28 TP1 TP4 TP7 RV27 RV21 RV1 RV20 TP10 TP11 RV2 RV3 RV10 RV22 RV26 RV25

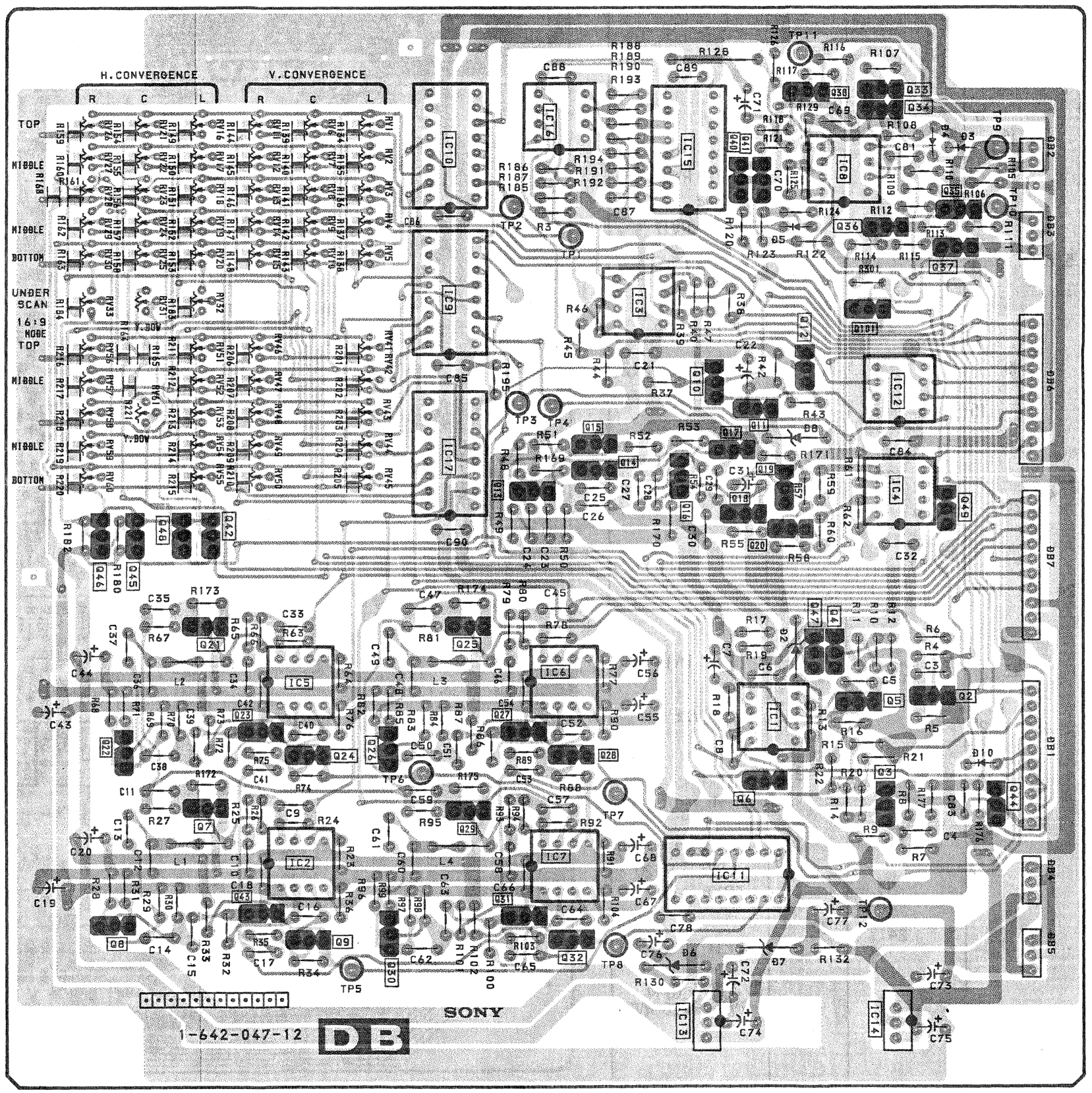
IC | Q | D | TP ADJ



• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

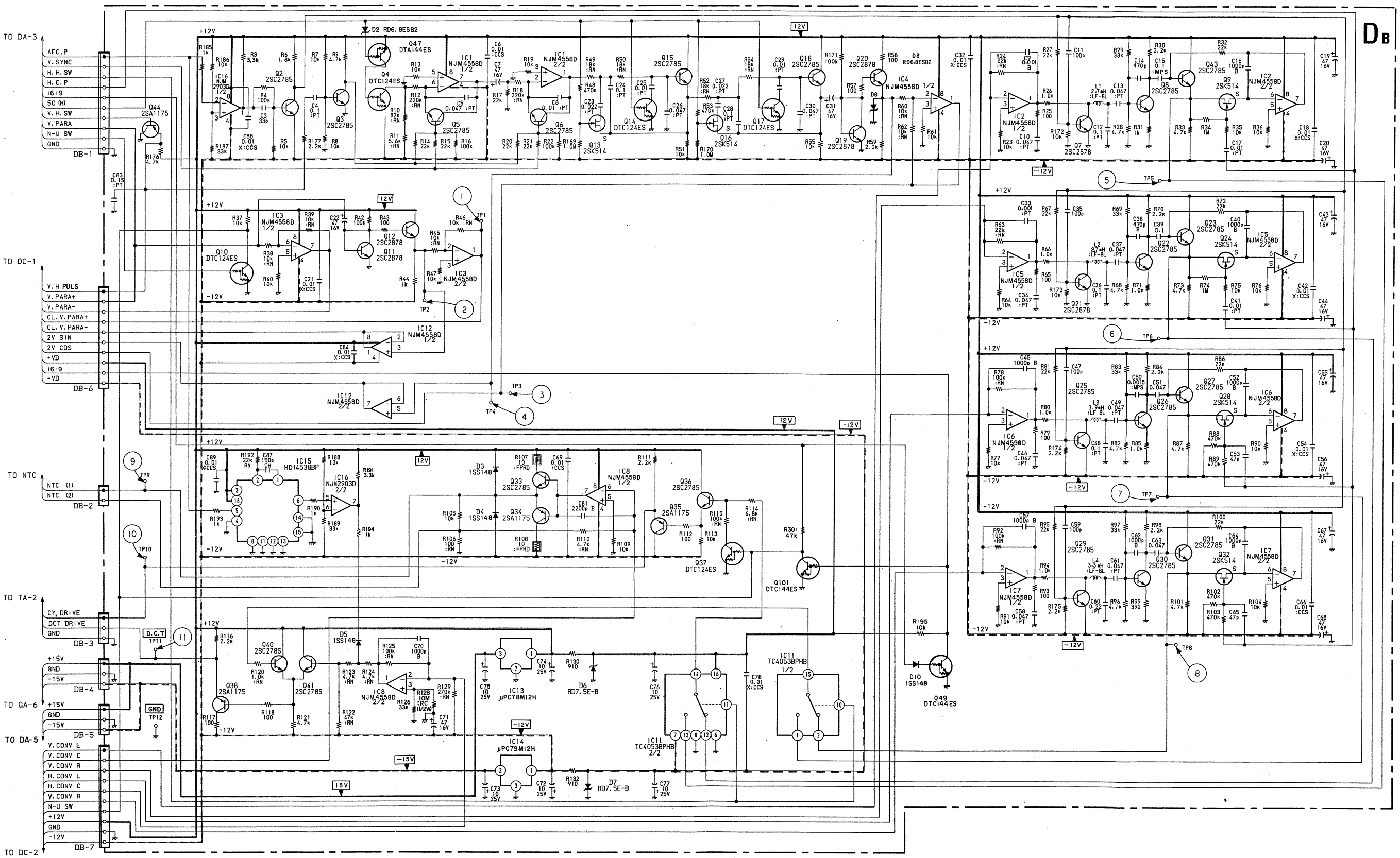
DB board (CONVERGENCE WAVEFORM)

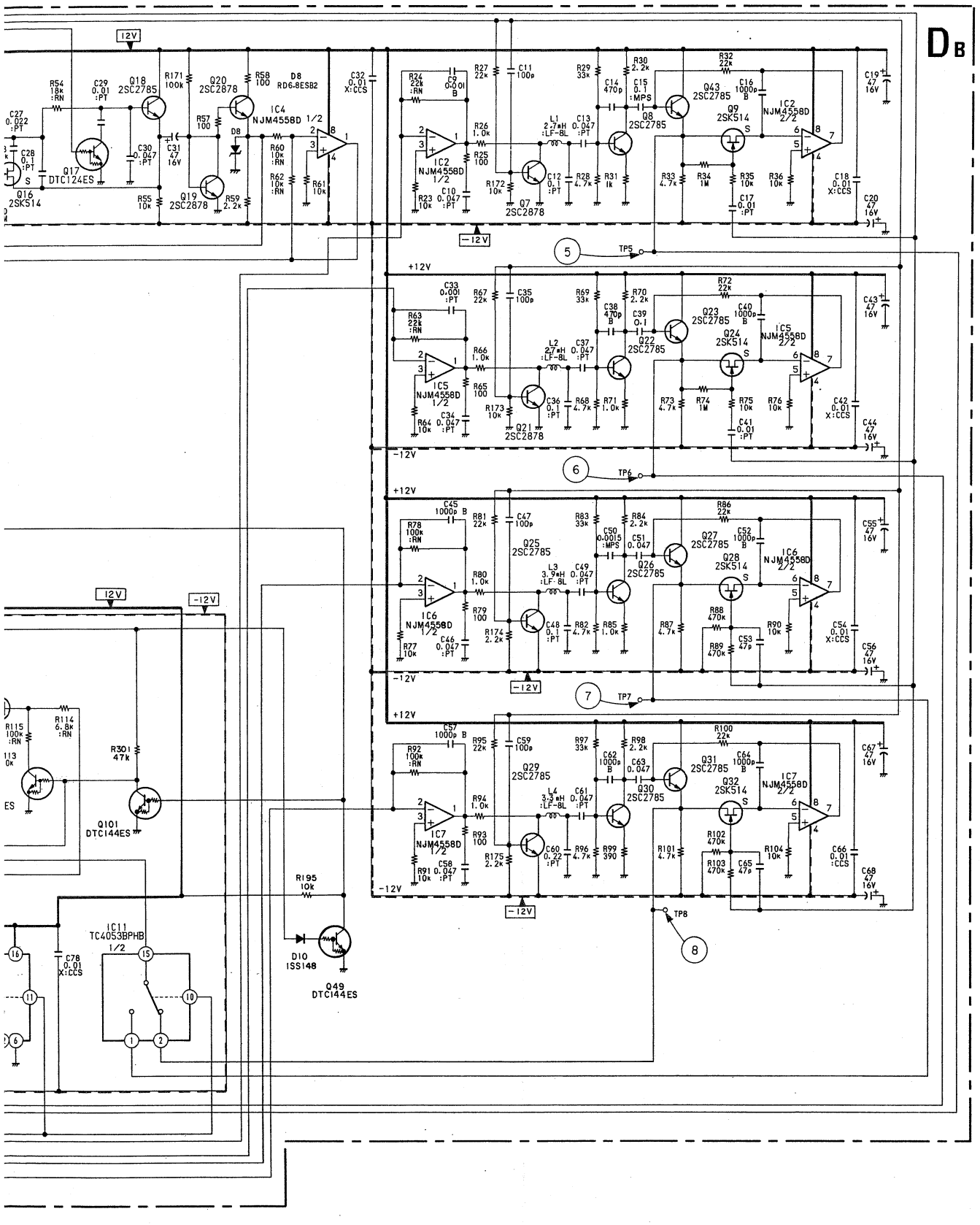
IC	Q	D	TP	ADJ
			11	
16	38 33 34			26 21 16 11 6 1
10 15		4 3	9	27 22 17 12 7 2
8	40 41 35		2 10	28 23 18 13 8 3
	36	5	1	29 24 19 14 9 4
	37			30 25 20 15 10 5
9 3	101			33 31 32
	10 12			56 51 46 41
12	11			57 52 47 42
			3 4	58 61 53 48 43
17	15 17	8		59 54 49 44
4	13 14 16 19			60 55 50 45
	18 20 49			
	46 45 48 42			
	21 25 47 4	2		
5 6	5 2			
1	23 27			
	22 24 26 28 6	10	6 7	
	7 29 3 44			
2 7 11				
	43 31		12	
	8 9 30 32	7	8	
		6	5	
13 14				



• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

DB board (CONVERGENCE WAVEFORM)

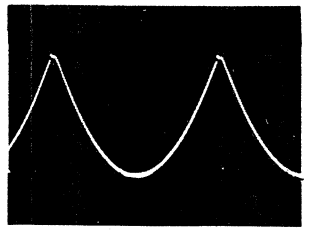




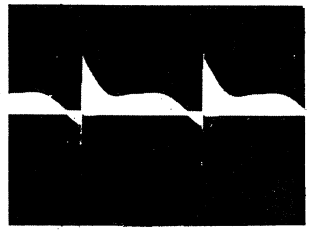
DB BOARD

IC 1	NJM4558D	2XV GEN
2	NJM4558D	AMP & CLAMP
3	NJM4558D	INVERTER
4	NJM4558D	INVERTER
5	NJM4558D	AMP & CLAMP
6	NJM4558D	AMP & CLAMP
7	NJM4558D	AMP & CLAMP
8	NJM4558D	AMP
11	TC4053BPHB	1/2HV. SW
12	NJM4558D	BUFFER
13	uPC78M12H	+12V REG.
14	uPC79M12H	−12V REG.
15	HD14538BP	H.CONV CLAMP
16	NJM2903D	INVERTER
Q 2	2SC2785	H. SW
3	2SC2785	2XV. PULSE GEN
4	DTC124ES	50/60 SW
5	2SC2785	2XV SW
6	2SC2785	2XV SW
7	2SC2878	H. SW
8	2SC2785	AMP
9	2SK514	H. CLAMP
10	DTC124ES	N/U SW
11	2SC2878	CLAMP
12	2SC2878	BUFFER
13	2SK514	50/60 SW
14	DTC124ES	50/60 SW
15	2SC2785	50/60 SW
16	2SK514	50/60 SW
17	DTC124ES	50/60 SW
18	2SC2785	BUFFER
19	2SC2878	CLAMP

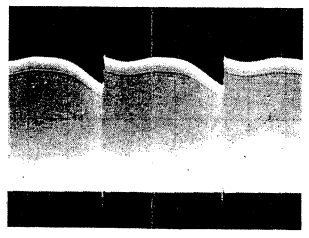
Q 20	2SC2878	BUFFER
21	2SC2878	H. SW
22	2SC2785	AMP
23	2SC2785	H. CLAMP
24	2SK514	H. CLAMP
25	2SC2785	H. SW
26	2SC2785	AMP
27	2SC2785	H. CLAMP
28	2SK514	H. CLAMP
29	2SC2785	H. SW
30	2SC2785	AMP
31	2SC2785	H. CLAMP
32	2SK514	H. CLAMP
33	2SC2785	N.T.C AMP
34	2SA1175	N.T.C AMP
35	2SA1175	BUFFER
36	2SC2785	BUFFER
37	DTC124ES	N/U SW
38	2SA1175	BUFFER
40	2SC2785	ADDER
41	2SC2785	ADDER
43	2SC2785	H.CLAMP
44	2SA1175	BUFFER
47	DTA144ES	16:9 SW
49	DTC144ES	INVERTER
101	DTA144ES	N/U SW
D 2	RD6.8ESB2	LEVEL SHIFT
3	1SS148	PROTECTER
4	1SS148	PROTECTER
5	1SS148	DC STOPPER
6	RD7.5E-B3TN	+7.5V REG.
7	RD7.5E-B3TN	−7.5V REG.
8	RD6.8ESB2	LIMITTER
10	1SS148	DC STOPPER



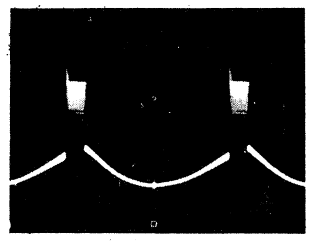
(1) 5.8Vp-p (V)



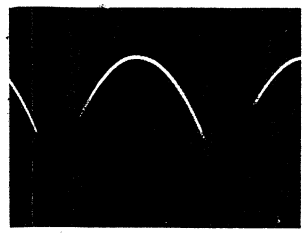
(5) 1.5Vp-p (V)



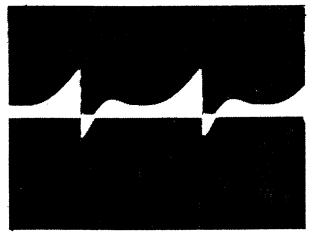
(8) 1.8Vp-p (V)



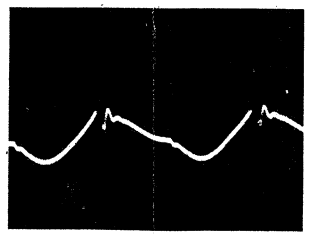
(11) 4.8Vp-p (H)



(2) 5.8Vp-p (V)

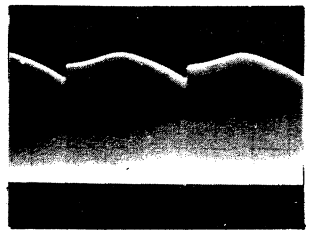


(6) 1.5Vp-p (V)

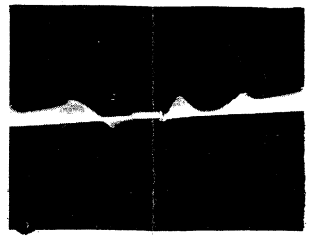


(9) 1Vp-p (V)

(3) 2.0Vp-p (V)
(4) 2.0Vp-p (V)



(7) 1.8Vp-p (V)

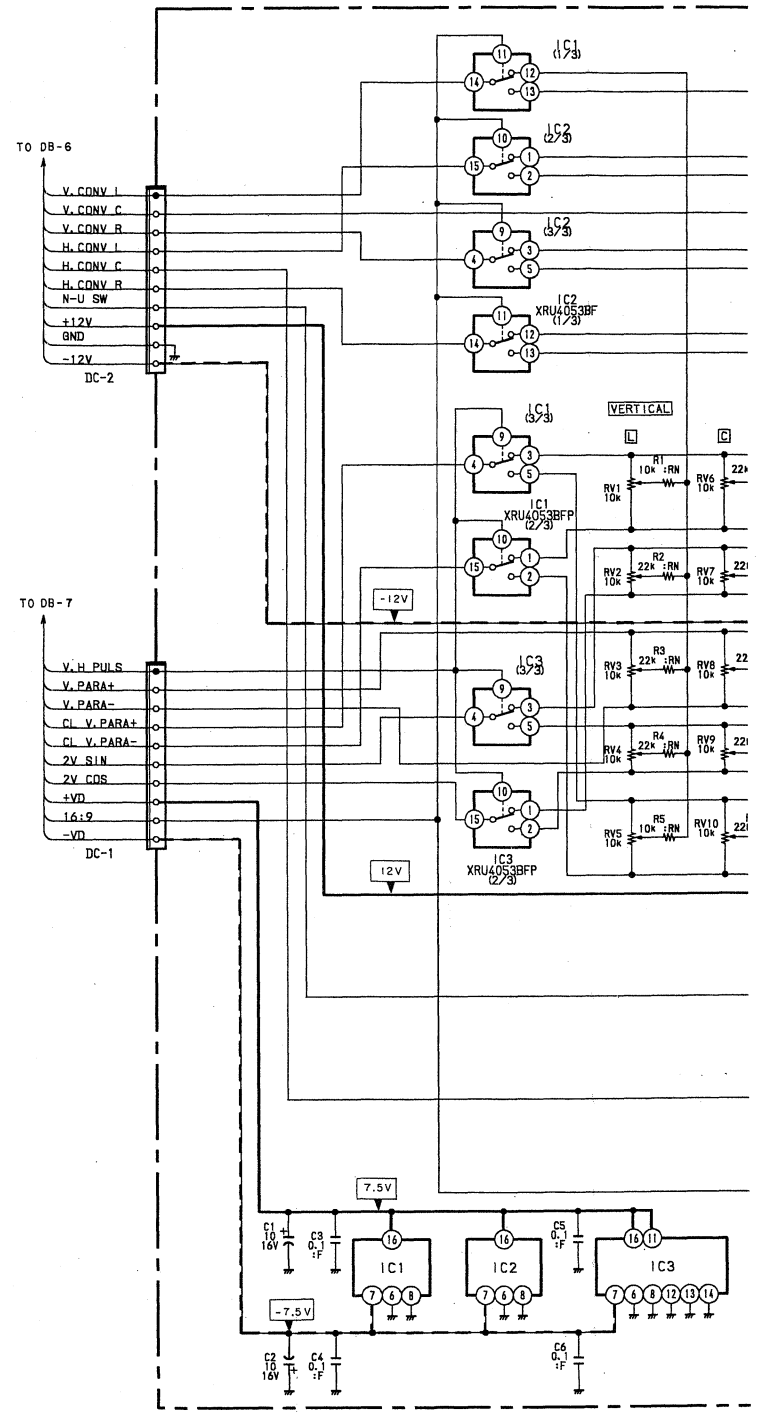


(10) 1.5Vp-p (V)

DC board (CONVERGENCE CONTROL)

DC board (CONVERGENCE CONTROL)

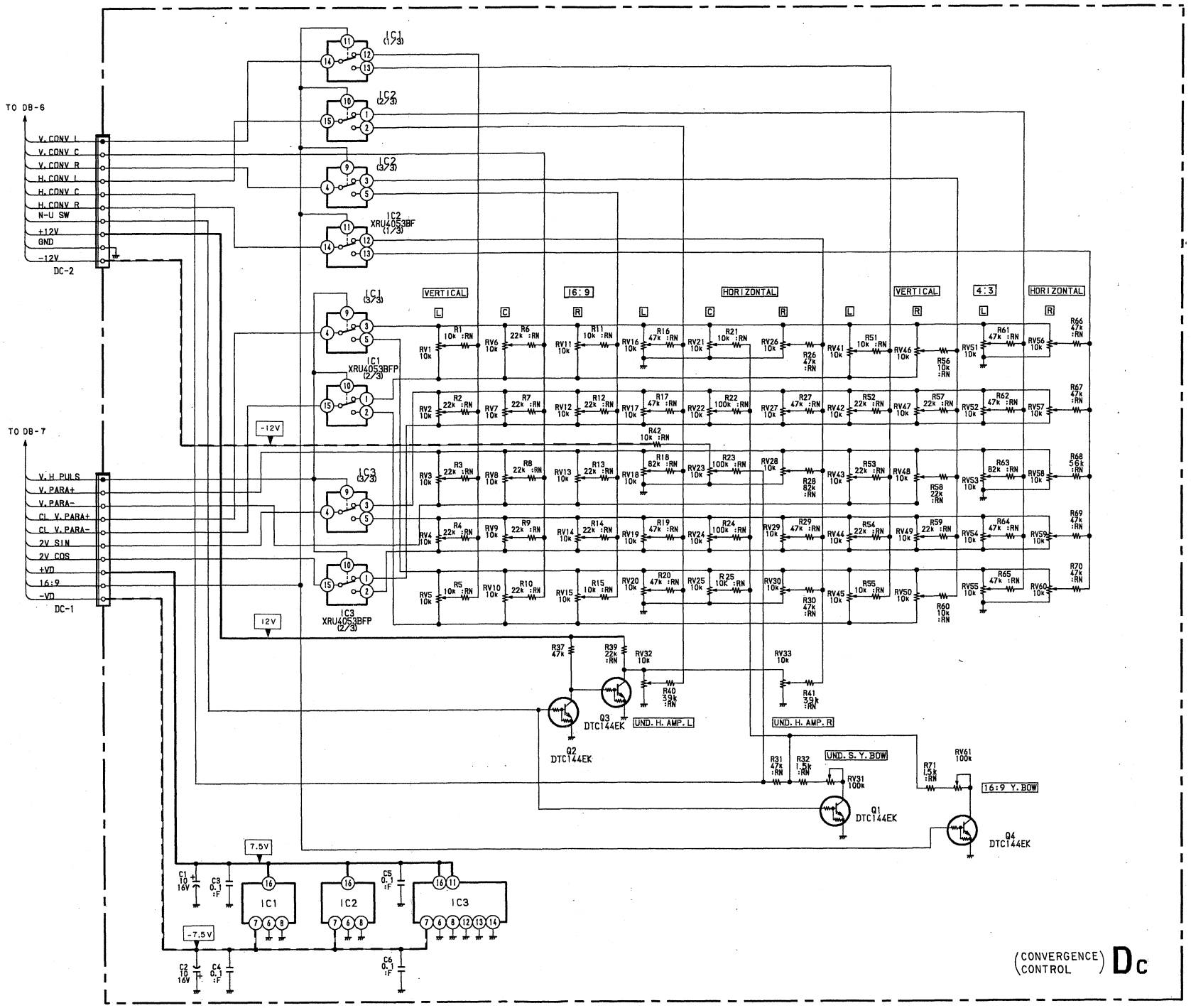
IC	1	XRU4053BF	1/2 HV. SW
	2	XRU4053BF	1/2 HV. SW
	3	XRU4053BF	
Q	1	DTC144EK	UND. Y BOW
	2	DTC144EK	UND. H. AMP
	3	DTC144EK	UND. H. AMP
	4	DTC144EK	16:9 Y BOW



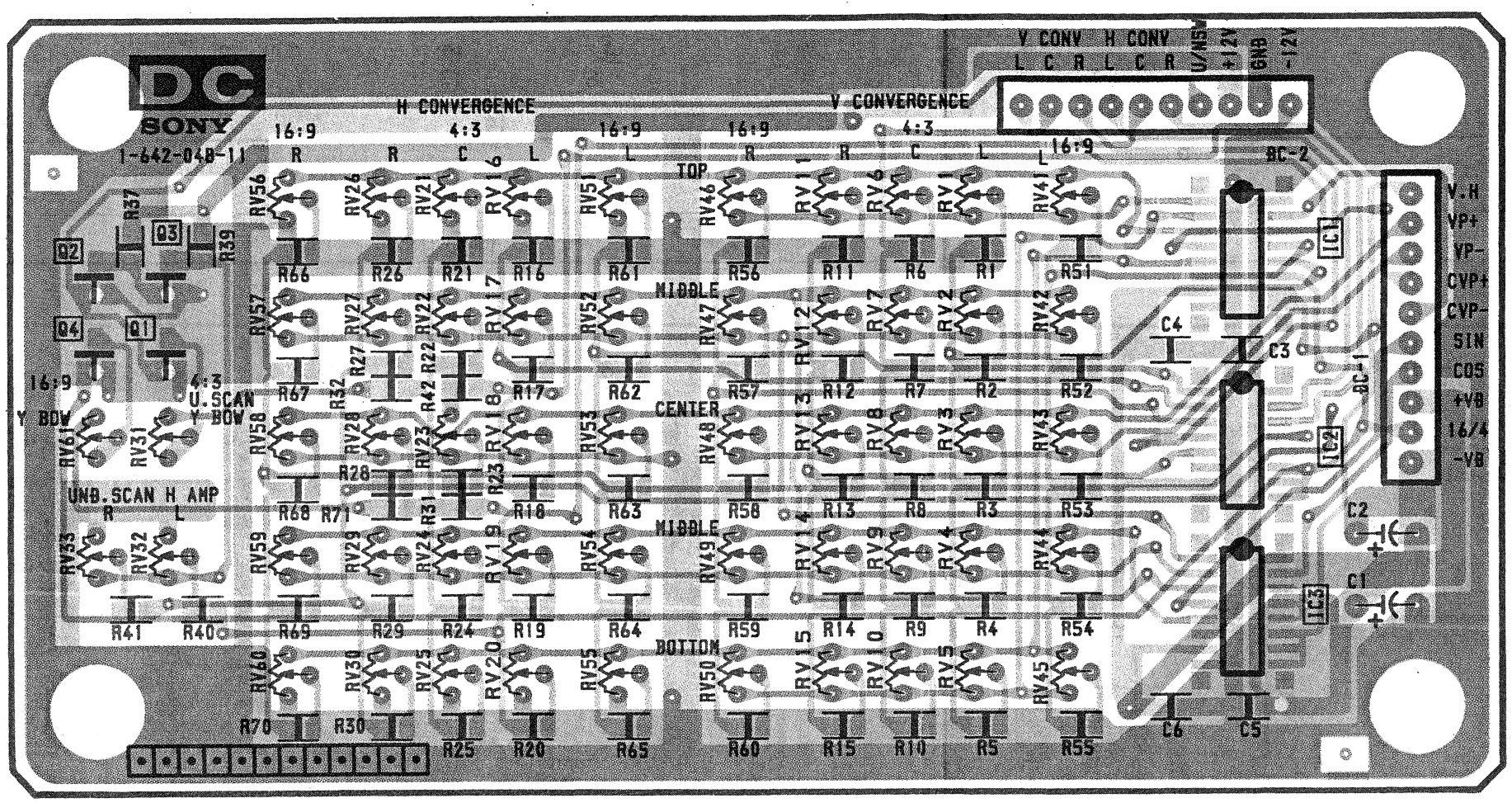
board (CONVERGENCE CONTROL)

: board (CONVERGENCE CONTROL)

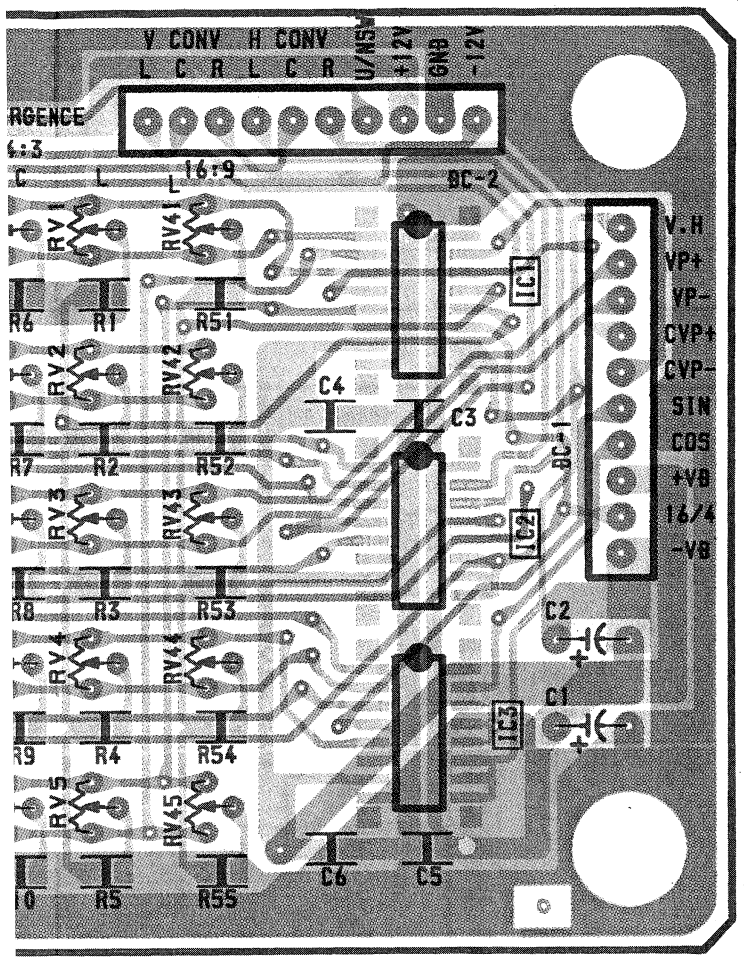
C	1	XRU4053BF	1/2 HV. SW
	2	XRU4053BF	1/2 HV. SW
	3	XRU4053BF	
Q	1	DTC144EK	UND. Y BOW
	2	DTC144EK	UND. H. AMP
	3	DTC144EK	UND. H. AMP
	4	DTC144EK	16:9 Y BOW



DC board (CONVERGENCE CONTROL)



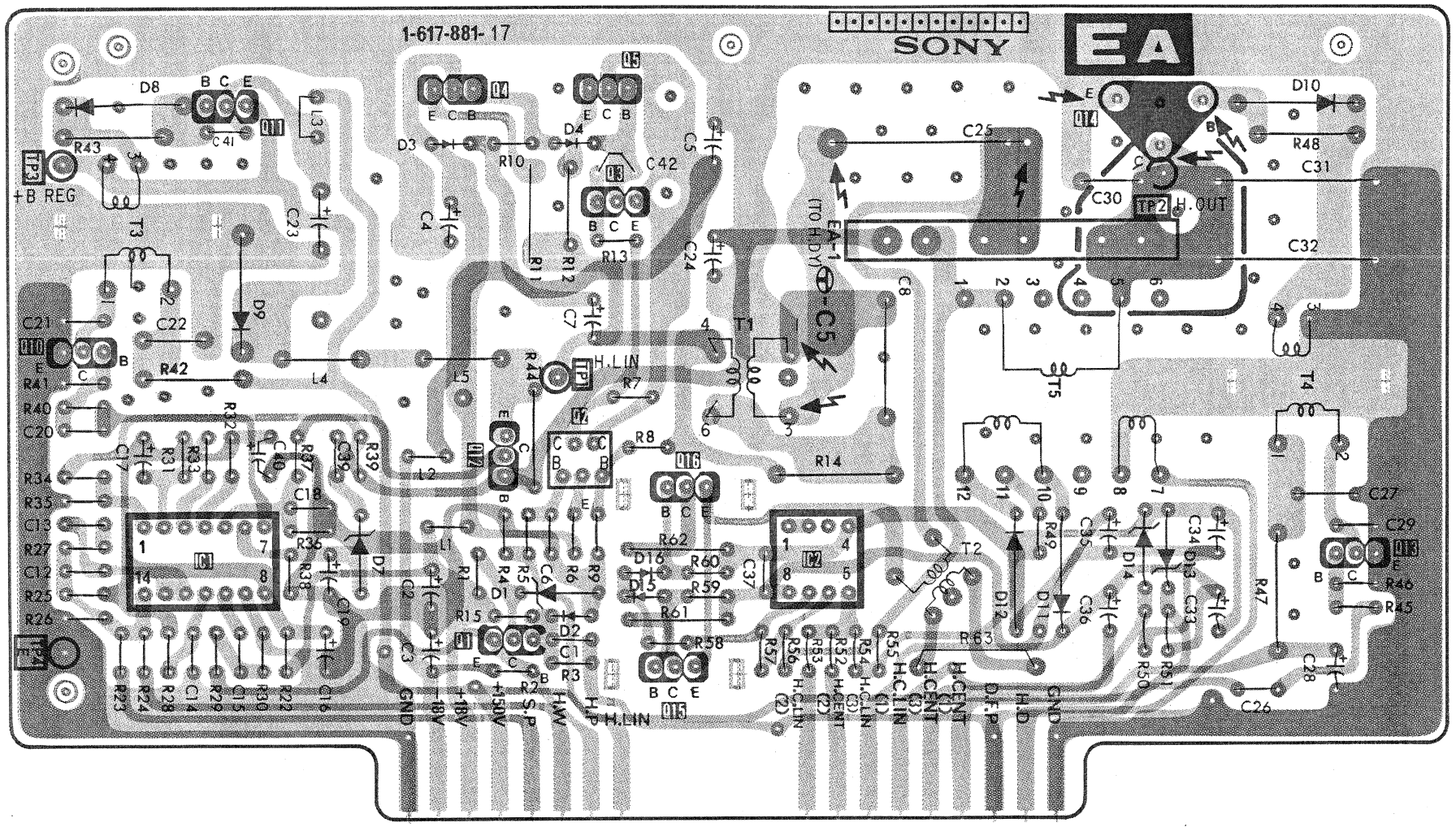
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.



- ▭ : Pattern from the side which enables seeing.
- ▭ : Pattern of the rear side.

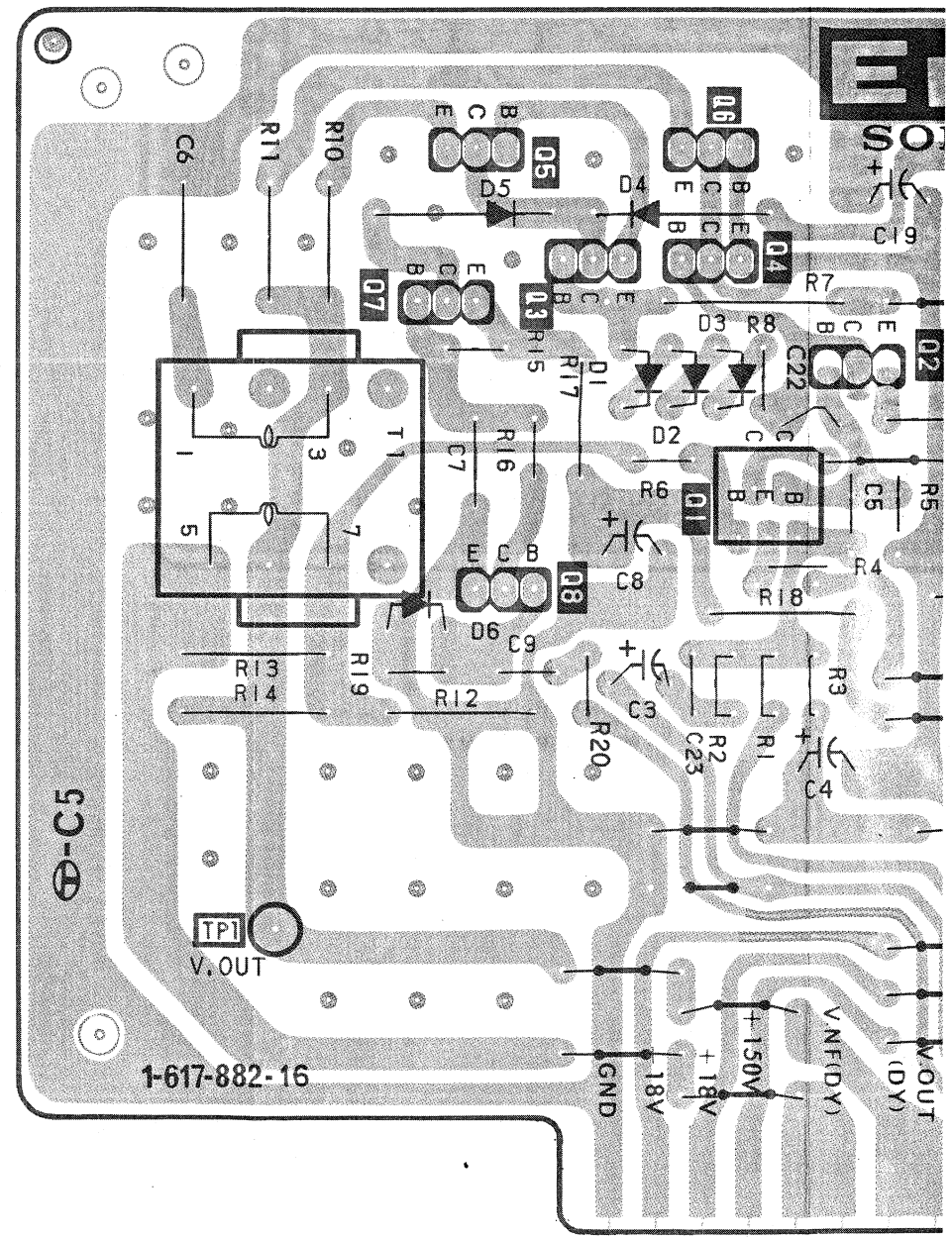
EA board (H OUT)

IC	1 2
Q	11 10 4 12 1 2 5 3 16 15 14 13
D	8 9 7 3 4 1 2 16 15 12 11 14 13 10
TP	TP 3 TP 4 TP 1 TP 2



EB board (V OUT)

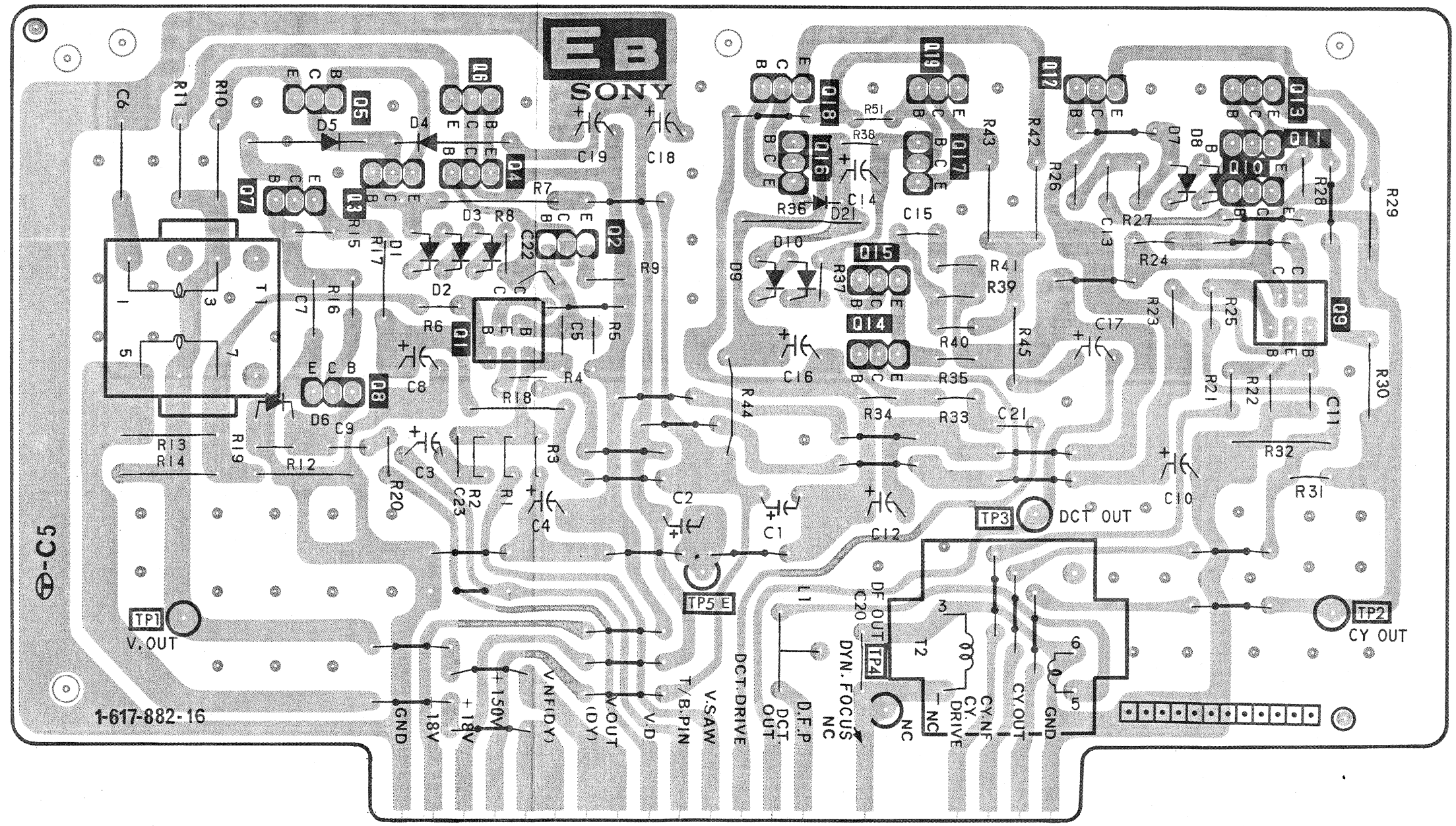
Q	5 7 8 3 6 4 1 2
D	5 6 4 1 2 3
TP	TP1



• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

EB board (V OUT)

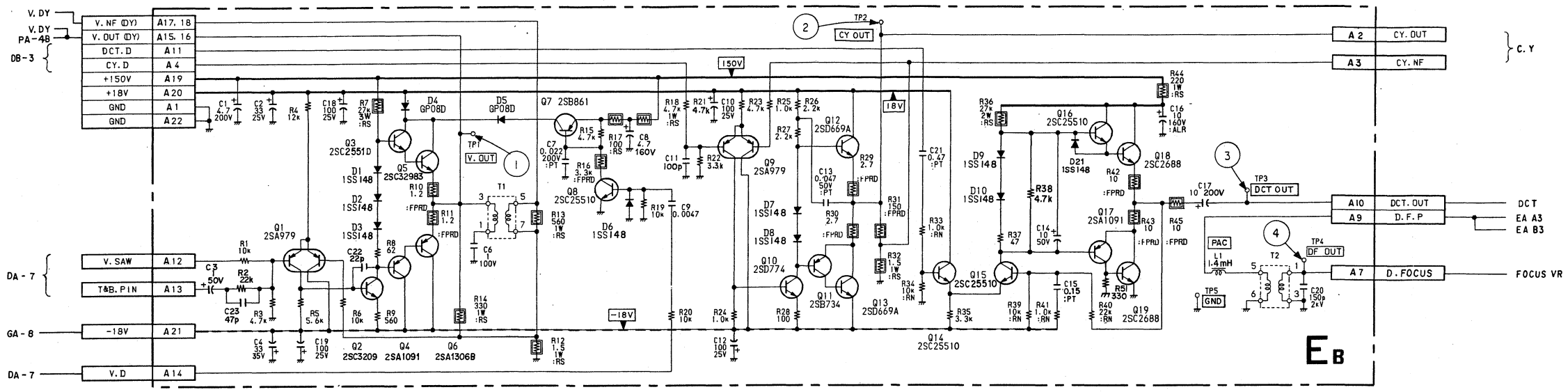
Q	5 7 8 6 4 3 1 2 18 16 19 17 15 14 12 13 11 10 9
D	5 4 1 2 3 6 9 10 21 7 8
TP	TP1 TP5 TP4 TP3 TP2

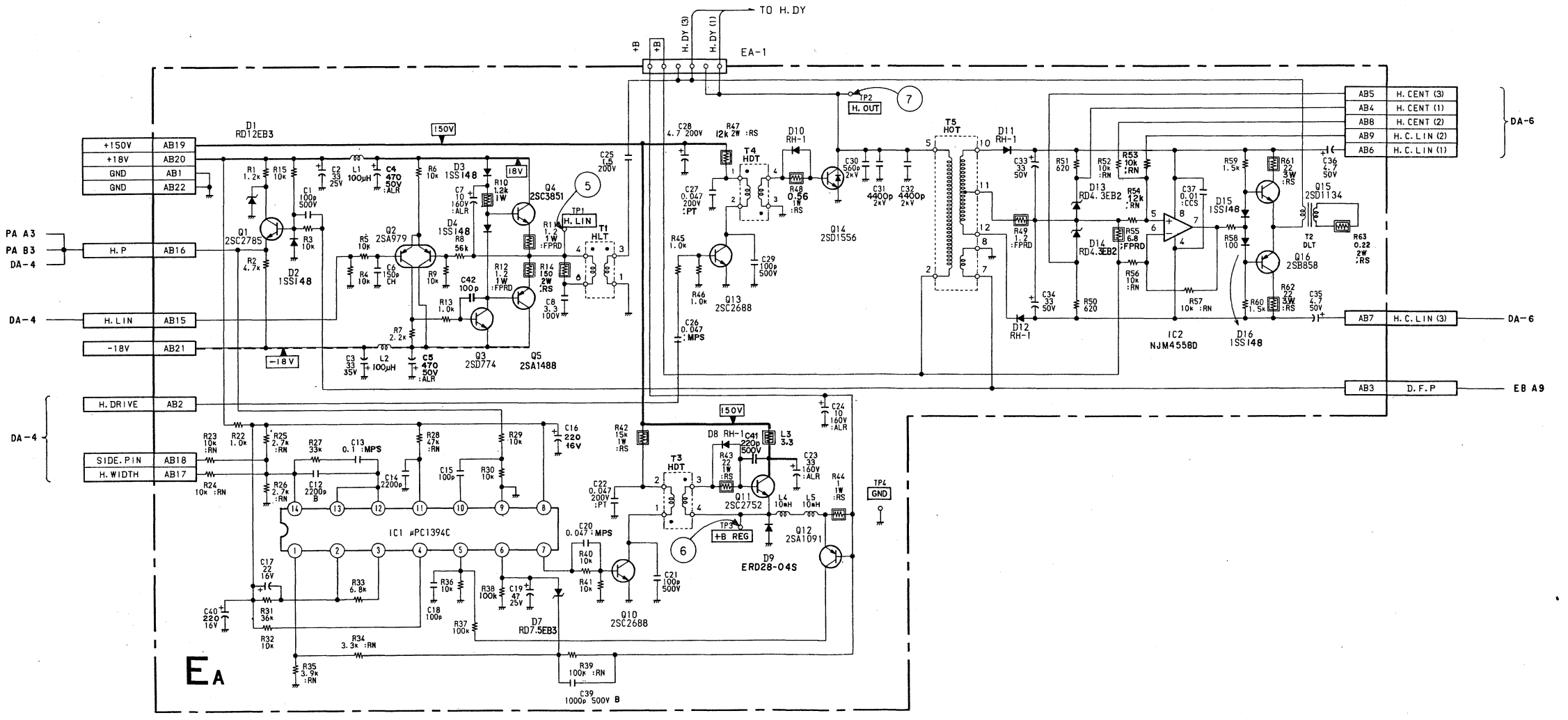


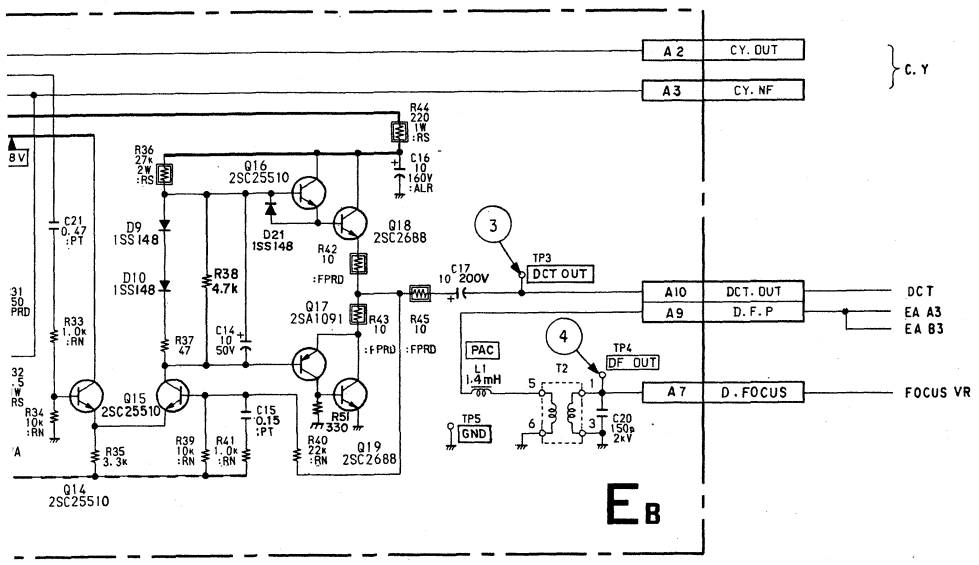
ıttern from the side which enables seeing.
ıttern of the rear side.

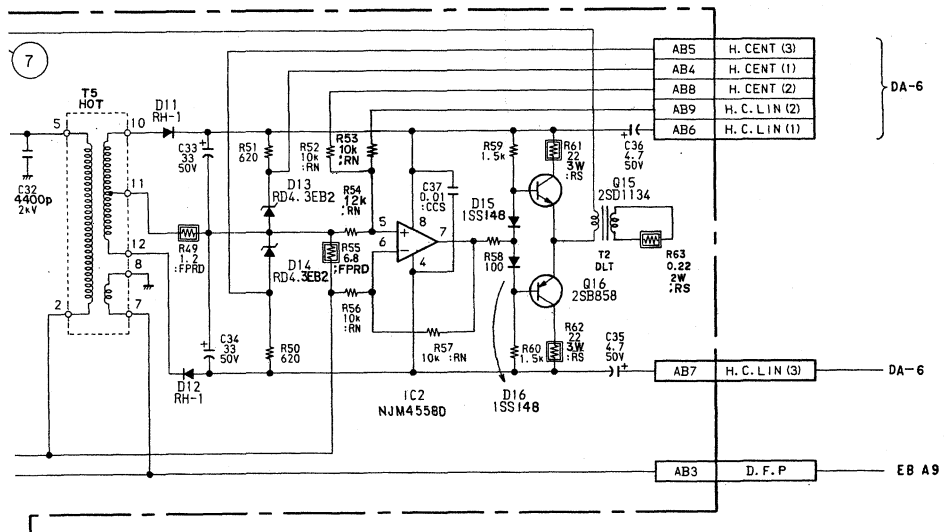
• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

EA board (H OUT)
EB board (V OUT)







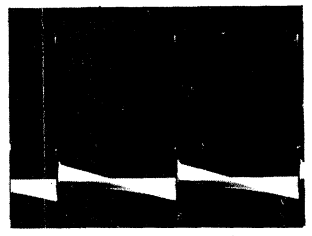


EA BOARD

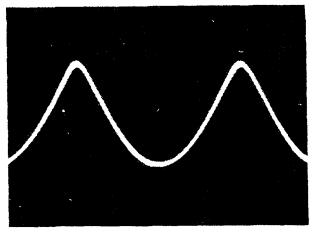
IC 1	uPC2394C	P.W.M CONTROL
2	NJM4558D	H.CENT
Q 1	2SC2785	H.PULSE BUFFER
2	2SA979	H.LIN AMP
3	2SD774	H.LIN AMP
4	2SC3851	H.LIN AMP OUT
5	2SA1488	H.LIN AMP OUT
10	2SC2688	P.W.M DRIVE
11	2SC2752	P.W.M OUT
12	2SA1091	O.C.P
13	2SC2688	H.DRIVE
14	2SD1556	H.OUT
15	2SD1134	H.CENT
16	2SB858	H.CENT
D 1	RD12E-B3	CLIPPER
2	1SS148	PROTECTOR
3	1SS148	BIAS
4	1SS148	BIAS
7	RD7.5E-B3	PROTECTOR
8	RH-1	P.W.M DRIVE
9	ERD28-04S	P.W.M SW
10	RH-1	H.DRIVE
11	RH-1	H.P.RECT.
12	RH-1	H.P.RECT.
13	RD4.3E-B2	+4.3V REG
14	RD4.3E-B2	–4.3V REG
15	1SS148	BIAS
16	1SS148	BIAS

EB BOARD

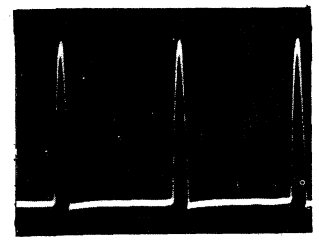
Q 1	2SA979	V.AMP
2	2SC3209	V.AMP
3	2SC25510	V.AMP
4	2SA1091	V.AMP
5	2SC3298B	V.AMP OUT
6	2SA1306B	V.AMP OUT
7	2SB861	V.RETRACE SW
8	2SC25510	V.RETRACE SW
9	2SA979	CY.AMP
10	2SD774	CY.AMP
11	2SB734	CY.AMP
12	2SD669A	CY.AMP OUT
13	2SD669A	CY.AMP OUT
14	2SC25510	D.C.T AMP
15	2SC25510	D.C.T AMP
16	2SC25510	D.C.T AMP
17	2SA1091	D.C.T AMP
18	2SC2688	D.C.T AMP OUT
19	2SC2688	D.C.T AMP OUT
D 1	1SS148	BIAS
2	1SS148	BIAS
3	1SS148	BIAS
4	GP08D	DC.STOPPER
5	GP08D	DC.STOPPER
6	1SS148	PROTECTOR
7	1SS148	BIAS
8	1SS148	BIAS
9	1SS148	BIAS
10	1SS148	BIAS
21	1SS148	PROTECTOR



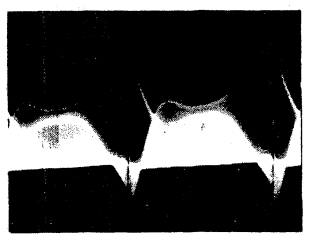
(1) 90Vp-p (V)



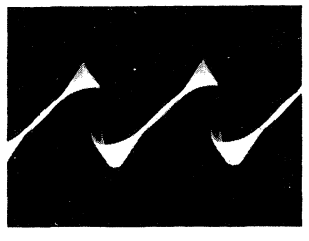
(4) 840Vp-p (H)



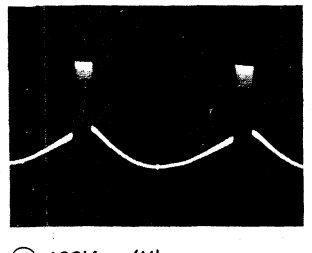
(7) 920Vp-p (H)



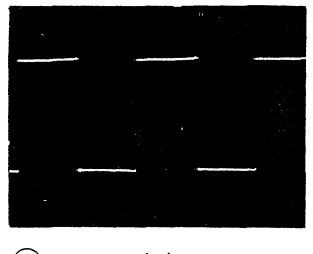
(2) 0.3Ap-p (V)



(5) 30Vp-p (H)

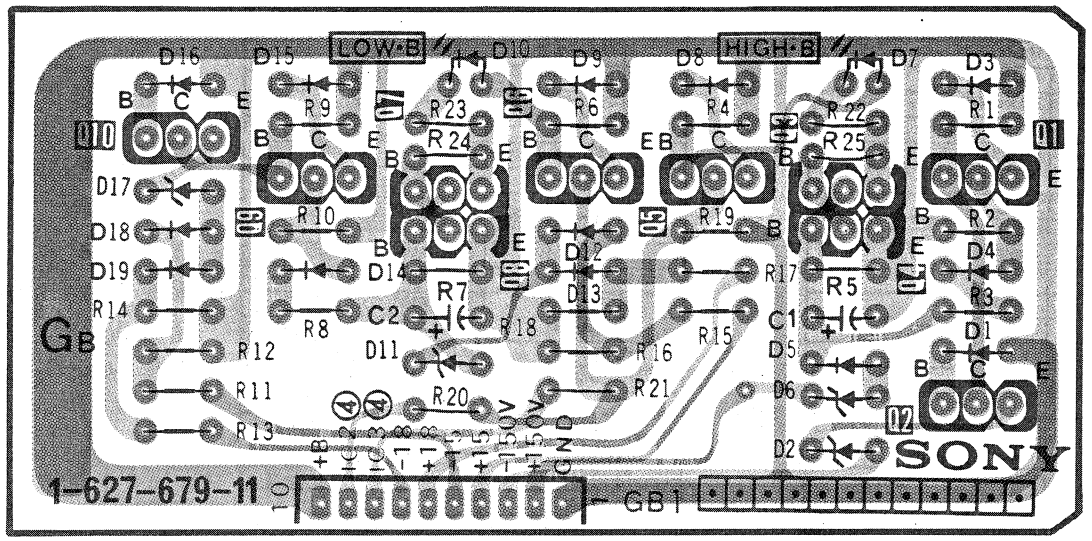


(3) 100Vp-p (H)



(6) 150Vp-p (H)

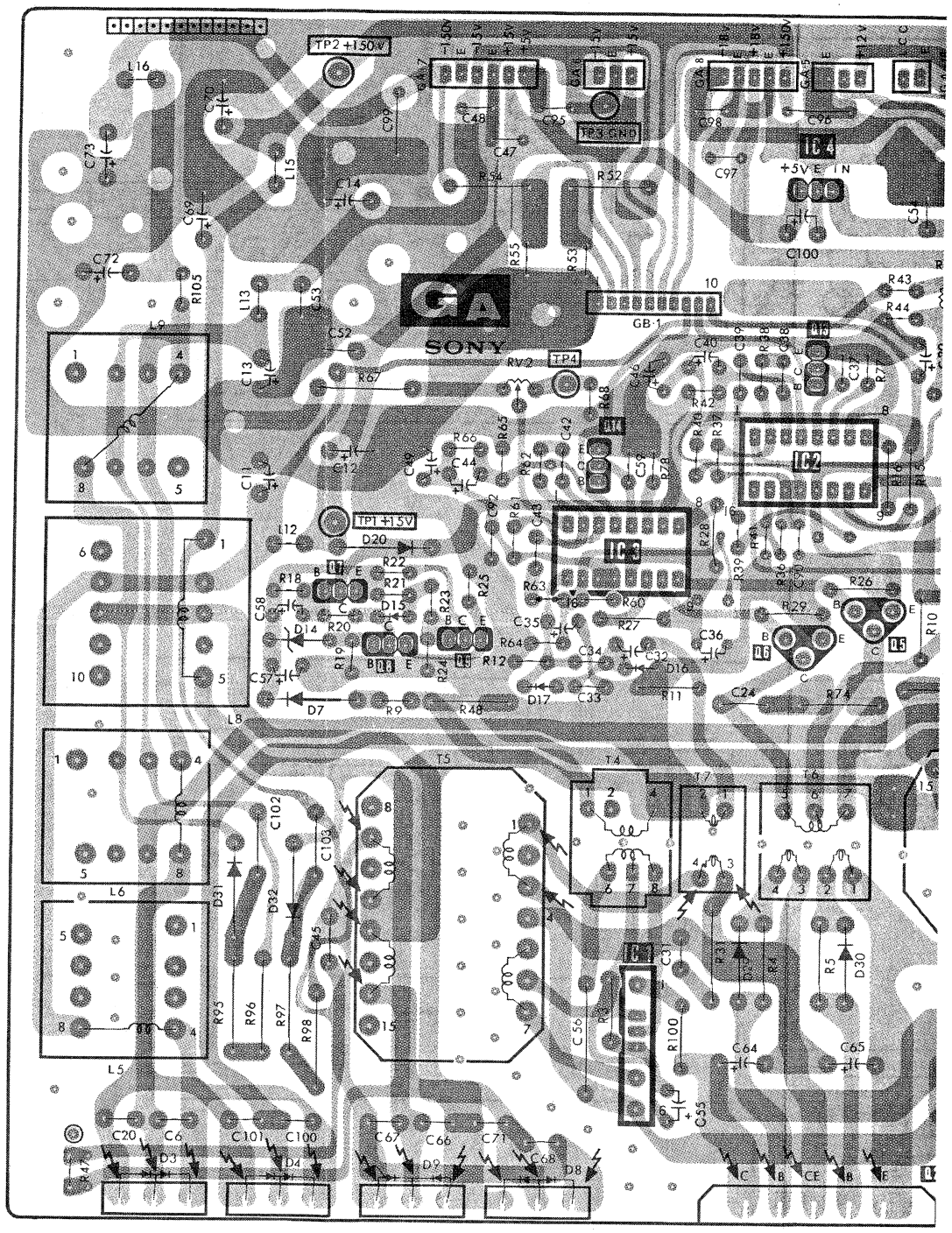
GB board (OVER VOLTAGE PROTECTOR)



- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

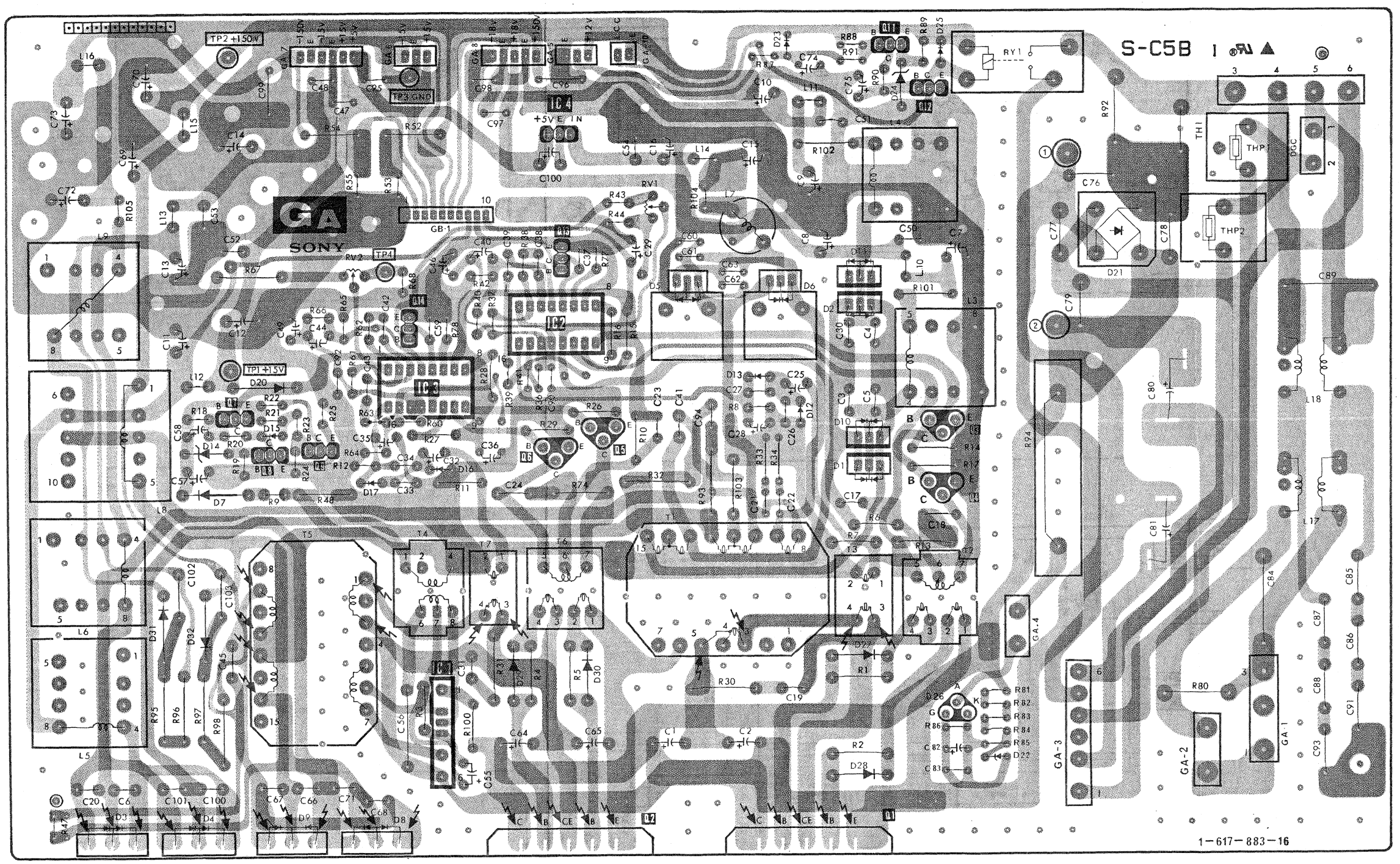
GA board (AC RECT, DC REG)

IC	Q	D	ADJ·TP
		23 25	
	11		TP2
	12	24	TP3
4			
			RV1
		21	
	13	11	RV2 TP4 TP5
		5 6	
2	14	2	
3			TP1
		20 13	
	7		
	9 8 5 3 6	15 12 10	
		14 16 1	
	4	17	
		7	
		31,32	
		29 27 30	
1		26	
		22	
		28	
	2 1	3 4 9 8	



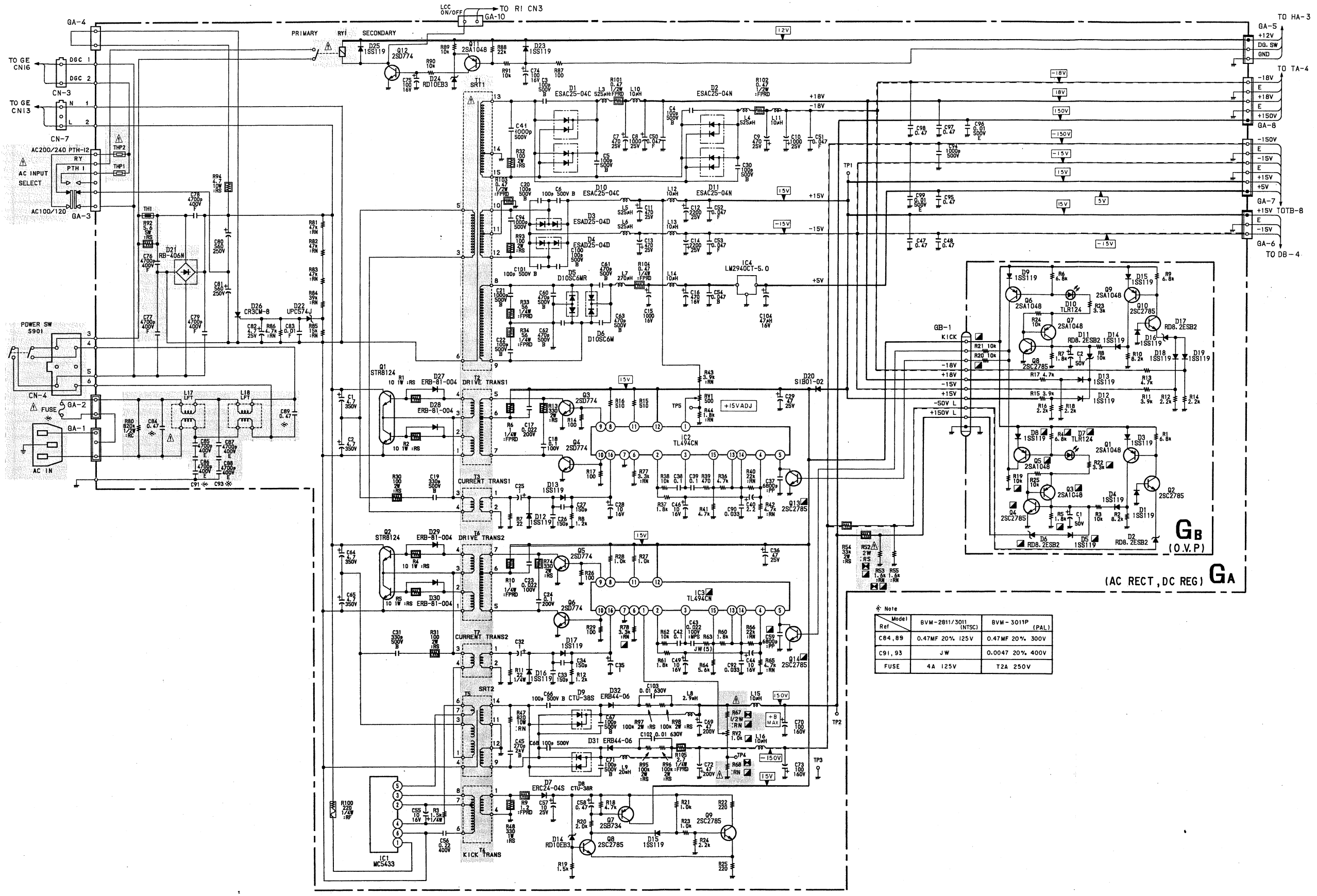
rd (AC RECT, DC REG)

Q	D	ADJ·TP
	23 25	
11		TP2
12	24	TP3
		RV1
	21	
13	11	RV2 TP4 TP5
	5 6	
	2	
14		
		TP1
	20 13	
7		
5 3	15 12	
6	10	
	14	
	16 1	
4	17	
	7	
	31,32	
	29 27	
	30	
	26	
	22	
	28	
	3 4	
2 1	9 8	



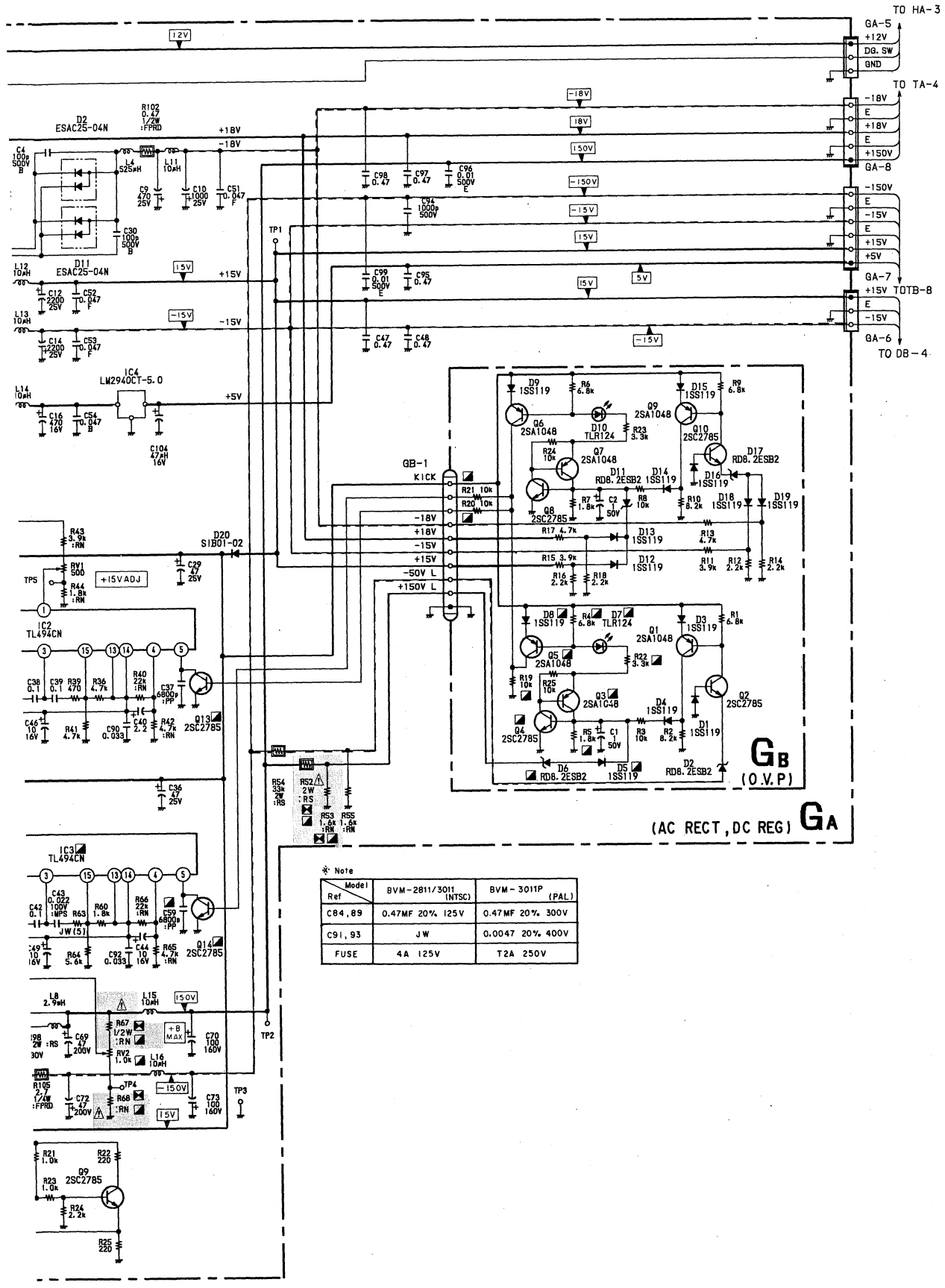
• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

GA board (AC RECT, DC REG)
GB board (OVER VOLTAGE PROTECTOR)



※ Note

Ref \ Model	BVM-2811/3011 (NTSC)	BVM-3011P (PAL)
C84, 89	0.47MF 20% 125V	0.47MF 20% 300V
C91, 93	JW	0.0047 20% 400V
FUSE	4A 125V	T2A 250V



※ Note

Ref \ Model	BVM-2811/3011 (NTSC)	BVM-3011P (PAL)
C84,89	0.47MF 20% 125V	0.47MF 20% 300V
C91,93	JW	0.0047 20% 400V
FUSE	4A 125V	T2A 250V

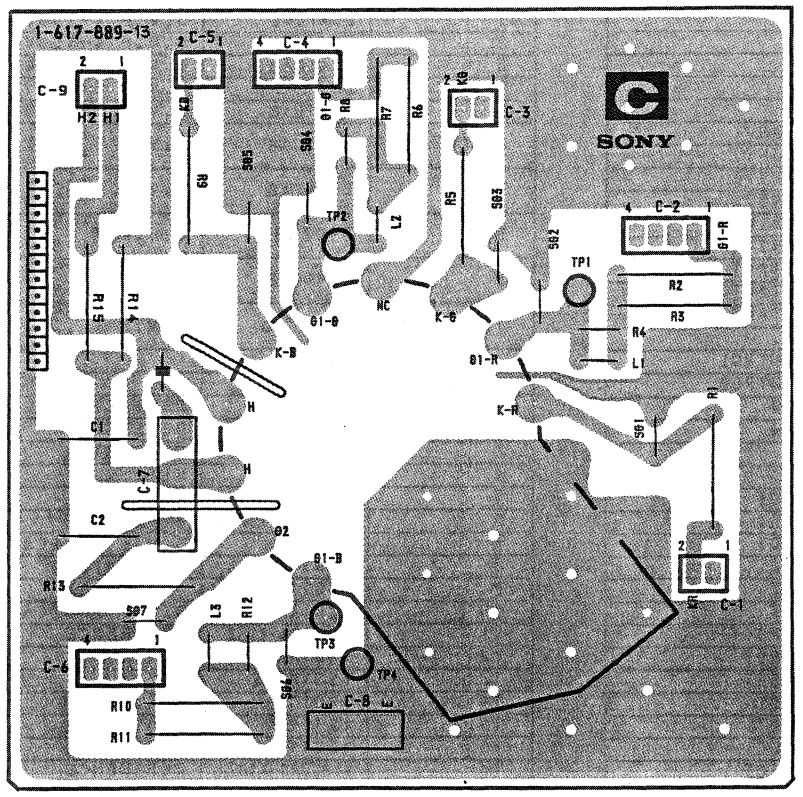
GA BOARD

IC1	MC5433	STARTER
2	TL494CN	DC REG
3	TL494CN	DC REG
Q1	STR8124	DC-DC CONV.
2	STR8124	DC-DC CONV.
3	2SD774	CONV. DRIVE
4	2SD774	CONV. DRIVE
5	2SD774	CONV. DRIVE
6	2SD774	CONV. DRIVE
7	2SB734	SOFT. START
8	2SC2785	SOFT. START
9	2SC2785	SOFT. START
10	2SD1134	+5V REG.
11	2SA1048	D.G. CONTROL
12	2SD774	D.G. CONTROL
13	2SC2785	O.V.P SW
14	2SC2785	O.V.P SW
D1	ESAC25-04C	+18V RECT
2	ESAC25-04N	-18V RECT
3	ESAD25-04D	+15V RECT
4	ESAD25-04D	-15V RECT
5	ESAC31-02D	+5V RECT
6	ESAC31-02D	-5V RECT
7	ERC24-04S	START. RECT
8	CTU-38R	-150V RECT
9	CTU-38S	+150V RECT
10	ESAC25-04C	+18V RECT
11	ESAC25-04N	-18V RECT
12	1SS119	O.C.P RECT
13	1SS119	O.C.P RECT
14	RD10EB3T	STARTER
15	1SS119	STARTER
16	1SS119	O.C.P RECT
17	1SS119	O.C.P RECT
18	RD5.6E-B3TN	+5V REG
20	SIB01-02	DC. STOPPER
21	RB406N	AC RECT
22	uPC574J	O.V.P
23	1SS119	DISCHARGE
24	RD10EB3T	+10V REG
25	1SS119	SW PROTECT
26	CR3CM-8	O.V.P
27	ERB81-004	CONV. DRIVE
28	ERB81-004	CONV. DRIVE
29	ERB81-004	CONV. DRIVE
30	ERB81-004	CONV. DRIVE
31	ERB44-06	
32	ERB44-06	

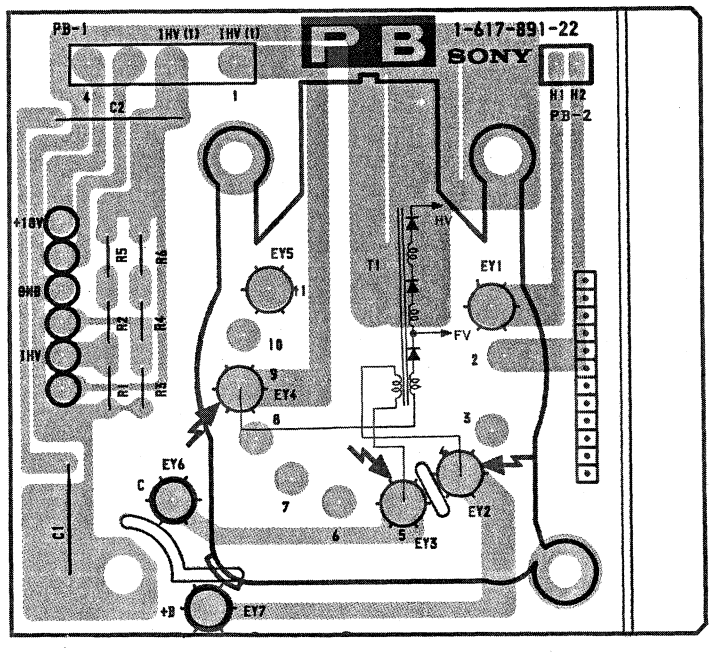
GB BOARD

Q1	2SA1048	O.V.P (-150V)
2	2SC2785	O.V.P (-150V)
3	2SA1048	O.V.P (+150V)
4	2SC2785	O.V.P (+150V)
5	2SA1048	O.V.P (+150V)
6	2SA1048	O.V.P ($^{+15}_{+18}$V)
7	2SA1048	O.V.P ($^{+15}_{+18}$V)
8	2SC2785	O.V.P ($^{+15}_{+18}$V)
9	2SA1048	O.V.P ($^{-15}_{-18}$V)
10	2SC2785	O.V.P ($^{-15}_{-18}$V)
D1	1SS119	PROTECTOR
2	RD8.2ES-T1B2	REFERENCE
3	1SS119	PROTECTOR
4	1SS119	MIX.
5	1SS119	MIX.
6	RD8.2ES-T1B2	REFERENCE
7	TLR124	O.V.P INDICATE
8	1SS119	PROTECTOR
9	1SS119	PROTECTOR
10	TLR124	O.V.P INDICATE
11	RD8.2ES-T1B2	REFERENCE
12	1SS119	MIX.
13	1SS119	MIX.
14	1SS119	MIX.
15	1SS119	PROTECTOR
16	1SS119	PROTECTOR
17	RD8.2ES-T1B2	REFERENCE
18	1SS119	MIX.
19	1SS119	MIX.

C board (CRT SOCKET)

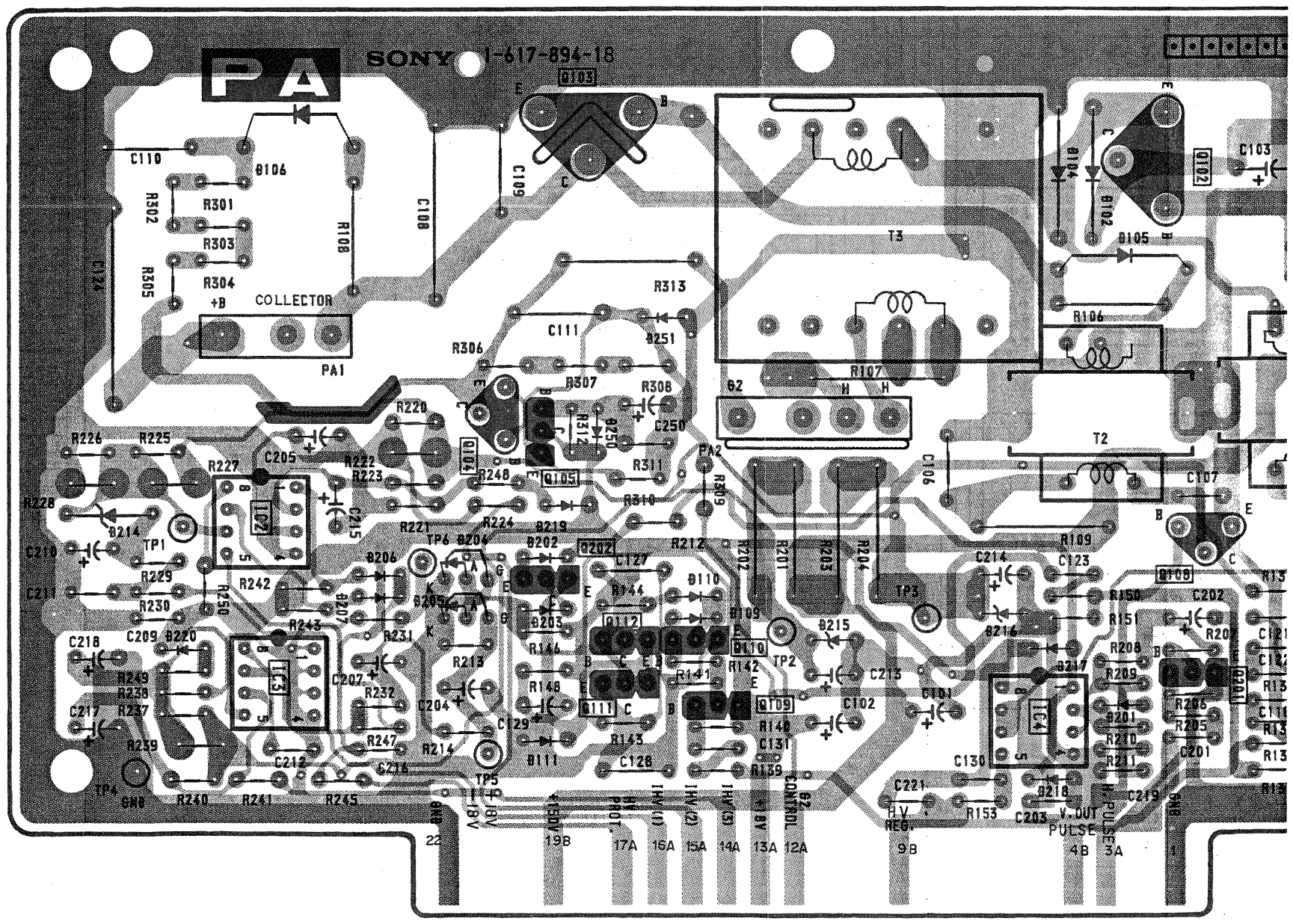


PB board (FBT)

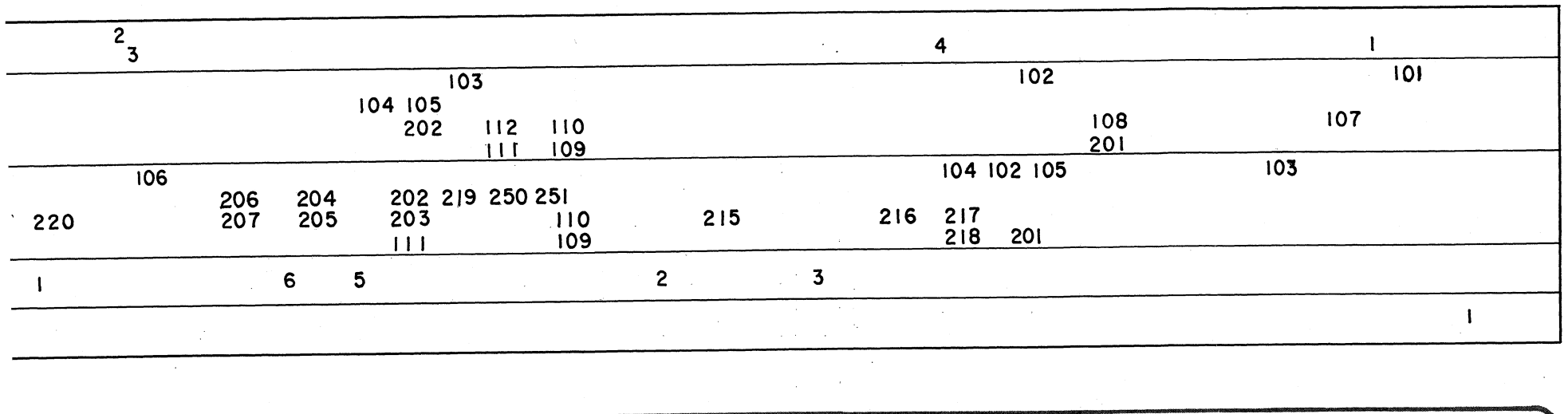


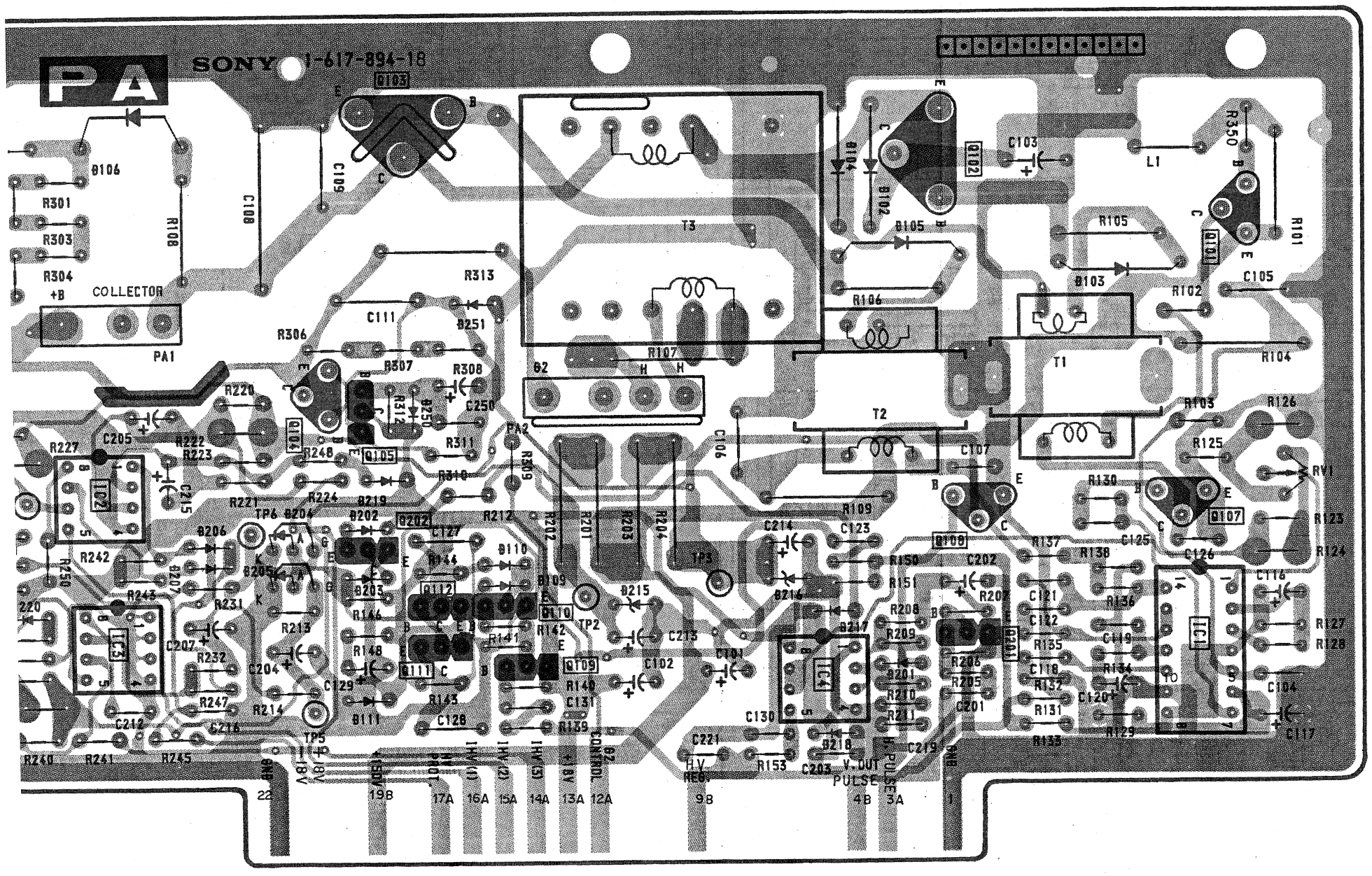
PA board (HIGH VOLTAGE PROTECTOR)

IC	2 3 4
Q	103 102 104 105 202 112 110 108 111 109 201
D	106 104 102 105 206 204 202 219 250 251 214 220 207 205 203 110 215 216 217 111 109 218 201
TP	4 1 6 5 2 3
RV	



\GE PROTECTOR)





5-107

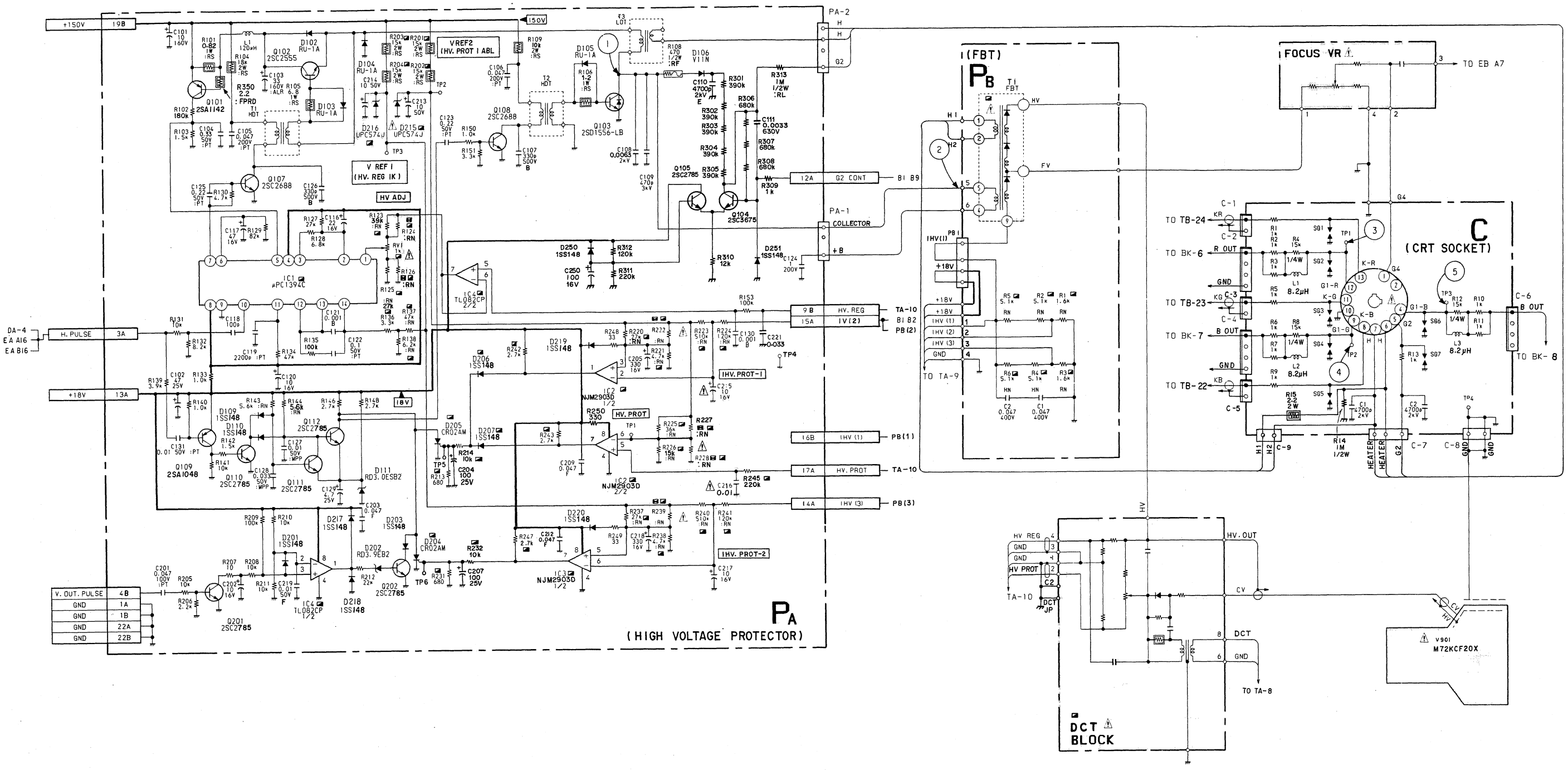
PA BOARD

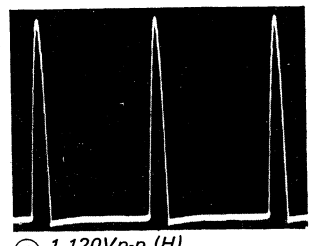
IC 1	uPC1394C	P.W.M CONTROL
2	NJM2903D	COMPARATOR
3	NJM2903D	COMPARATOR
4	TL082CP	BUFFER & COMPARATOR
Q101	2SA1142	O.V.P
102	2SC2555	DC-DC CONV.
103	2SD1556	HV CONV.
104	2SC3675	G2 REGULATOR
105	2SC2785	G2 REGULATOR
107	2SC2688	DC-DC CONV. DRIVE
108	2SC2688	HV CONV. DRIVE
109	2SA1048	HV CONV. DRIVE
110	2SC2785	HV CONV. DRIVE
111	2SC2785	HV CONV. DRIVE
112	2SC2785	HV CONV. DRIVE
201	2SC2785	CRT PROTECTOR
202	2SC2785	CRT PROTECTOR
D 102	RU-1A	DC-DC CONV.
103	RU-1A	DC-DC CONV.
104	RU-1A	DC-DC CONV.
105	RU-1A	HV CONV. DRIVE
106	V11N	RECTIFIER
107	RD6.2EB2	G2 CONTROL
109	1SS148	HV CONV. DRIVE
110	1SS148	HV CONV. DRIVE
111	RD3.0ESB2	HV CONV. DRIVE
201	1SS148	PROTECTOR
202	RD3.9EB2	CRT PROTECTOR
203	1SS148	CRT PROTECTOR
204	CR02AM-4	PROTECTOR
205	CR02AM-4	PROTECTOR
206	1SS148	MIX
207	1SS148	MIX
214	HZ1A2L	HV.PROT
215	uPC574J	HV PROT. REF.
216	uPC574J	HV PROT. REF.
217	1SS148	PROT
218	1SS148	PROT
219	1SS148	PROT
220	1SS148	PROT
250		
251		

- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

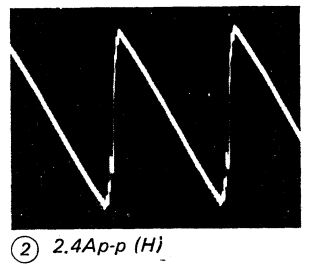
5-108

C board (CRT SOCKET)
PA board (HIGH VOLTAGE PROTECTOR)
PB board (FBT)

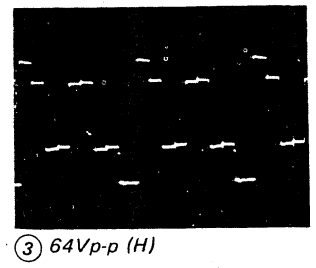




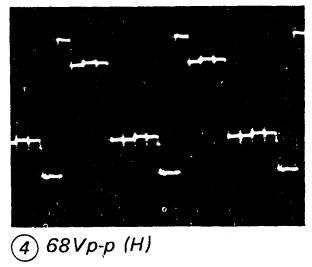
① 1.120Vp-p (H)



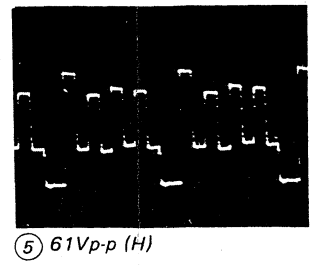
② 2.4Ap-p (H)



③ 64Vp-p (H)

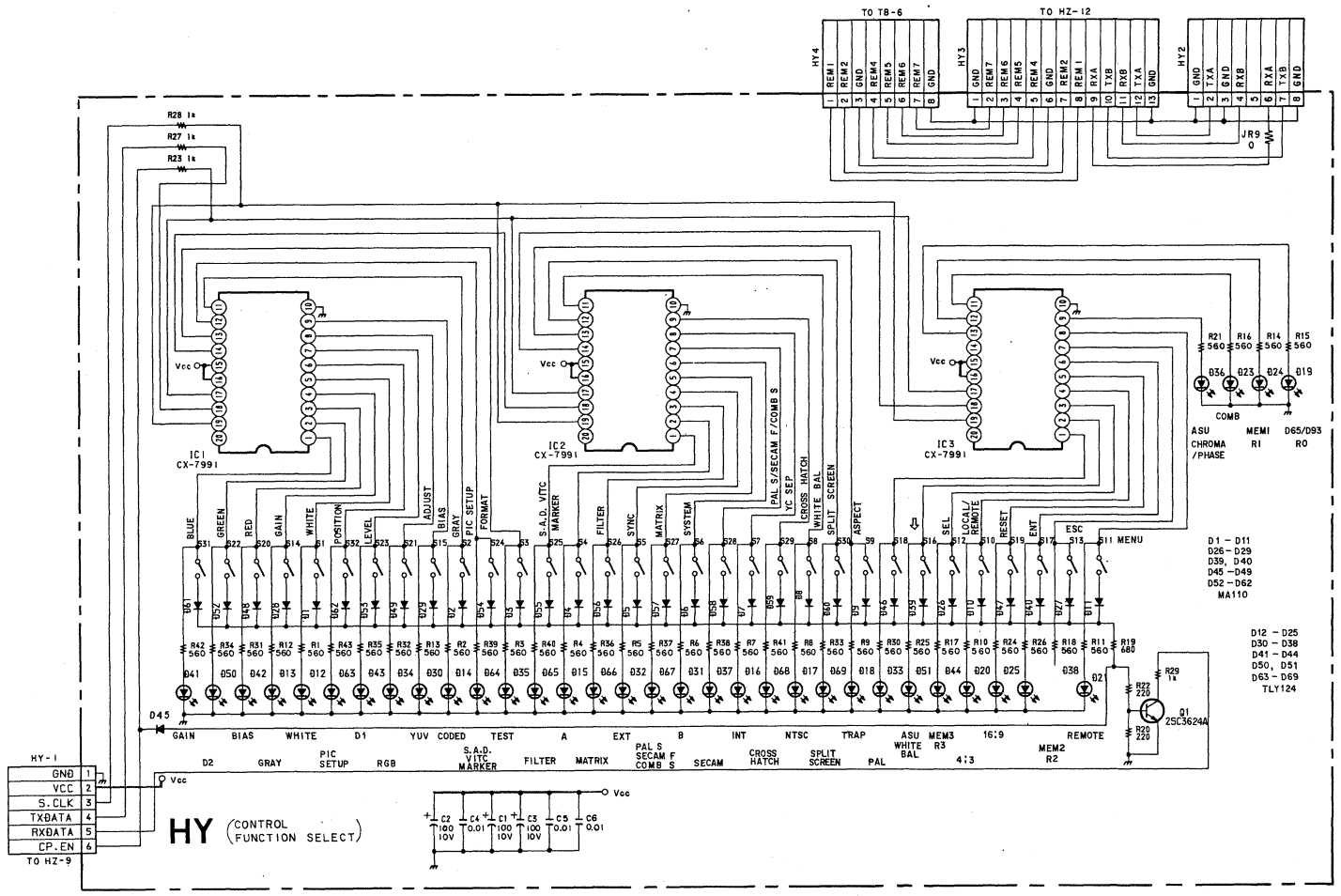


④ 68Vp-p (H)



⑤ 61Vp-p (H)

HA board (PANEL CONTROL), HH board (MANUAL VOLUME), HW board (MANUAL CONTROL), HX board (INPUT SELECT), HY board (CONTROL FUNCTION SELECT), Y board (POWER LED)



Y BOARD

D	1	TLG124A	POWER INDICATOR

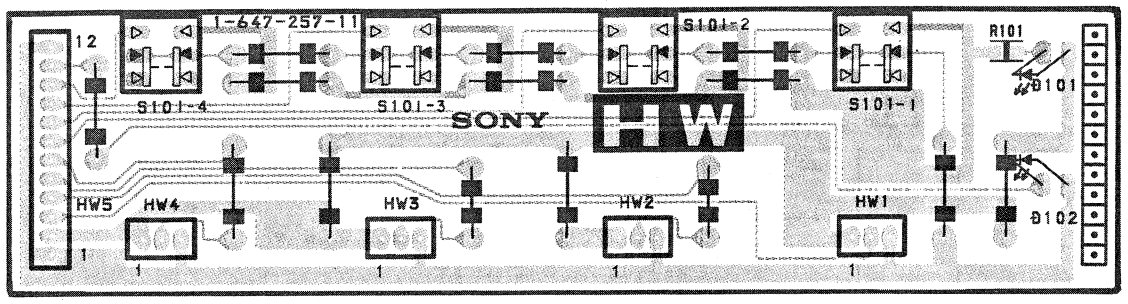
HY BOARD

IC	1	CX-7991	KEY SCAN
	2	CX-7991	KEY SCAN
	3	CX-7991	KEY SCAN
Q	1	2SC2757	KEY DETECTION
D	1	MA110	PROTECTION
	2	MA110	PROTECTION
	3	MA110	PROTECTION
	4	MA110	PROTECTION
	5	MA110	PROTECTION
	6	MA110	PROTECTION
	7	MA110	PROTECTION
	8	MA110	PROTECTION
	9	MA110	PROTECTION
	10	MA110	PROTECTION
	11	MA110	PROTECTION
	12	MA110	PROTECTION
	13	TLY124	INDICATOR
	14	TLY124	INDICATOR
	15	TLY124	INDICATOR
	16	TLY124	INDICATOR
	17	TLY124	INDICATOR
	18	TLY124	INDICATOR
	19	TLY124	INDICATOR
	20	TLY124	INDICATOR
	21	TLY124	INDICATOR
	23	TLY124	INDICATOR
	24	TLY124	INDICATOR
	25	TLY124	INDICATOR
	26	MA110	PROTECTION
	27	MA110	PROTECTION
	28	MA110	PROTECTION
	29	MA110	PROTECTION
	30	TLY124	INDICATOR
	31	TLY124	INDICATOR
	32	TLY124	INDICATOR
	33	TLY124	INDICATOR
	34	TLY124	INDICATOR
D	35	TLY124	INDICATOR
	36	TLY124	INDICATOR
	37	TLY124	INDICATOR
	38	TLY124	INDICATOR
	39	MA110	PROTECTION
	40	MA110	PROTECTION
	41	TLY124	NDICATOR
	42	TLY124	NDICATOR
	43	TLY124	NDICATOR
	44	TLY124	NDICATOR
	45	MA110	PROTECTION
	46	MA110	PROTECTION
	47	MA110	PROTECTION
	48	MA110	PROTECTION
	49	MA110	PROTECTION
	50	TLY124	INDICATOR
	51	TLY124	INDICATOR
	52	MA110	PROTECTION
	53	MA110	PROTECTION
	54	MA110	PROTECTION
	55	MA110	PROTECTION
	56	MA110	PROTECTION
	57	MA110	PROTECTION
	58	MA110	PROTECTION
	59	MA110	PROTECTION
	60	MA110	PROTECTION
	61	MA110	PROTECTION
	62	MA110	PROTECTION
	63	MA110	PROTECTION
	64	TLY124	INDICATOR
	65	TLY124	INDICATOR
	66	TLY124	INDICATOR
	67	TLY124	INDICATOR
	68	TLY124	INDICATOR
	69	TLY124	INDICATOR

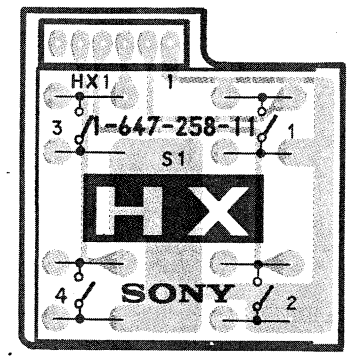
HW BOARD

D 101	TLY124	INDICATOR
102	TLR124	INDICATOR

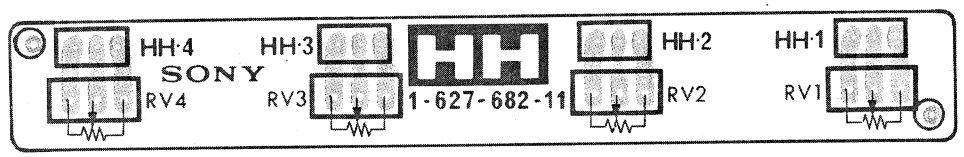
HW board (MANUAL CONTROL)



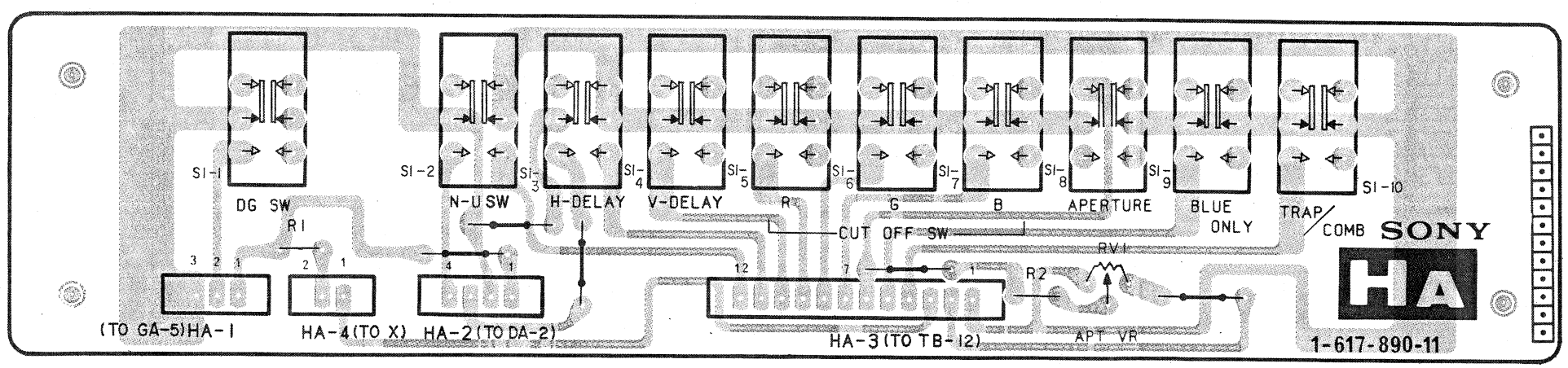
HX board (INPUT SELECT)



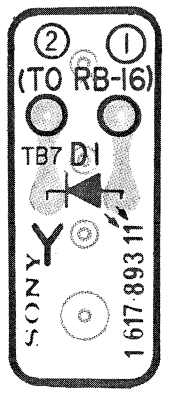
HH board (MANUAL VOLUME)



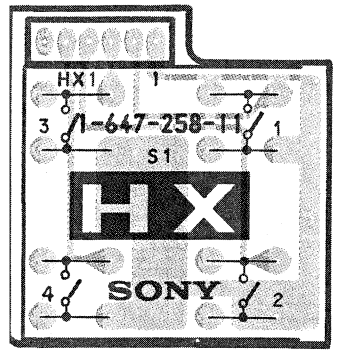
HA board (PANEL CONTROL)



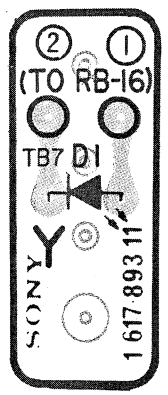
Y board (POWER LED)

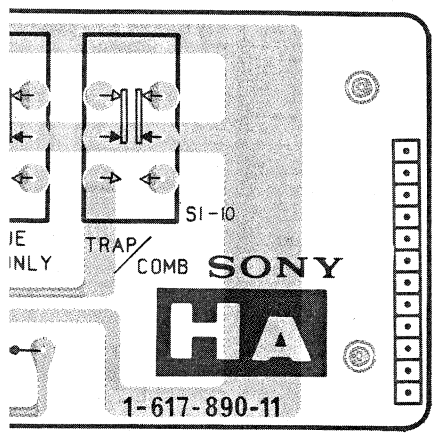


IX board (INPUT SELECT)

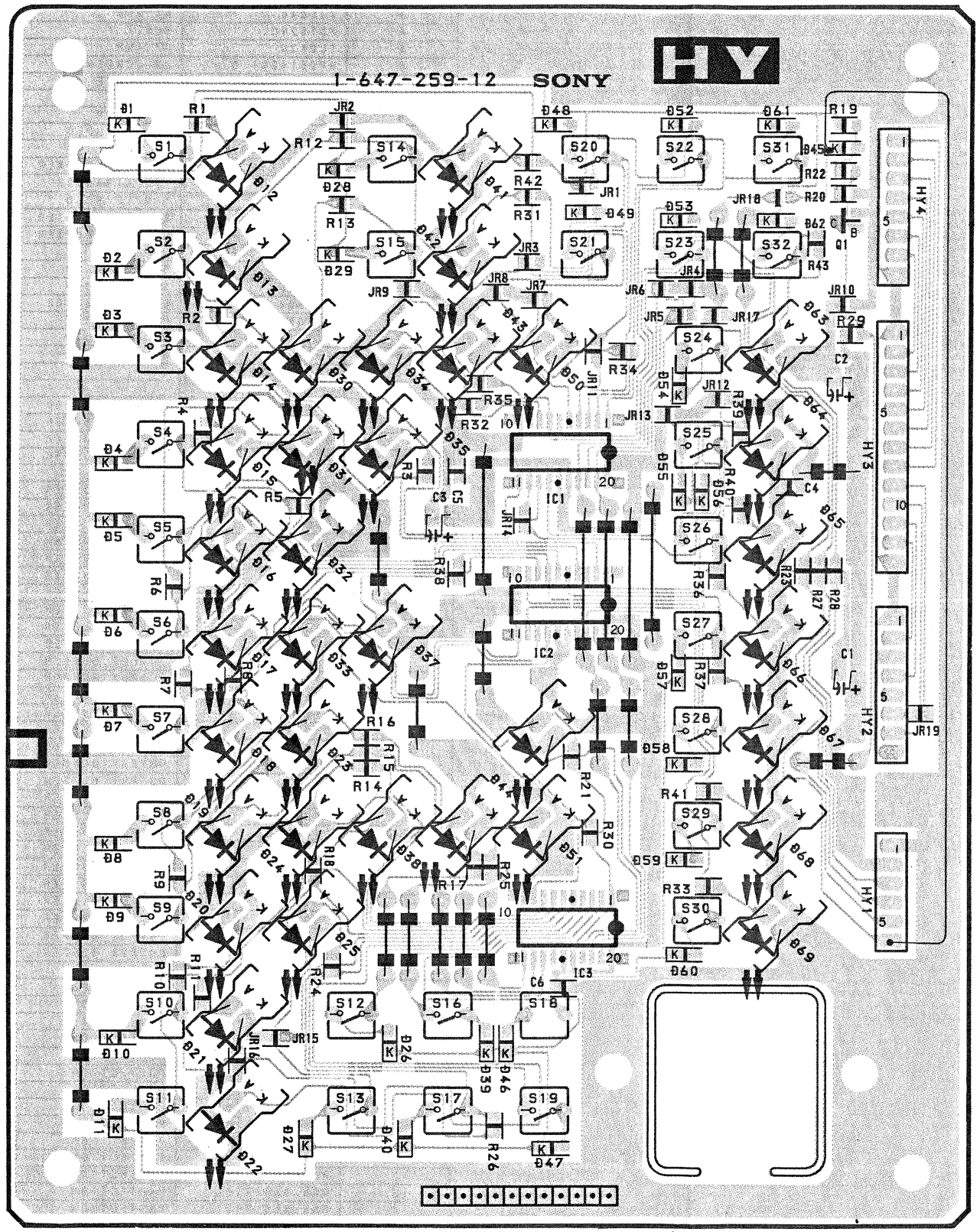


Y board (POWER LED)





HY board (CONTROL FUNCTION SELECT)

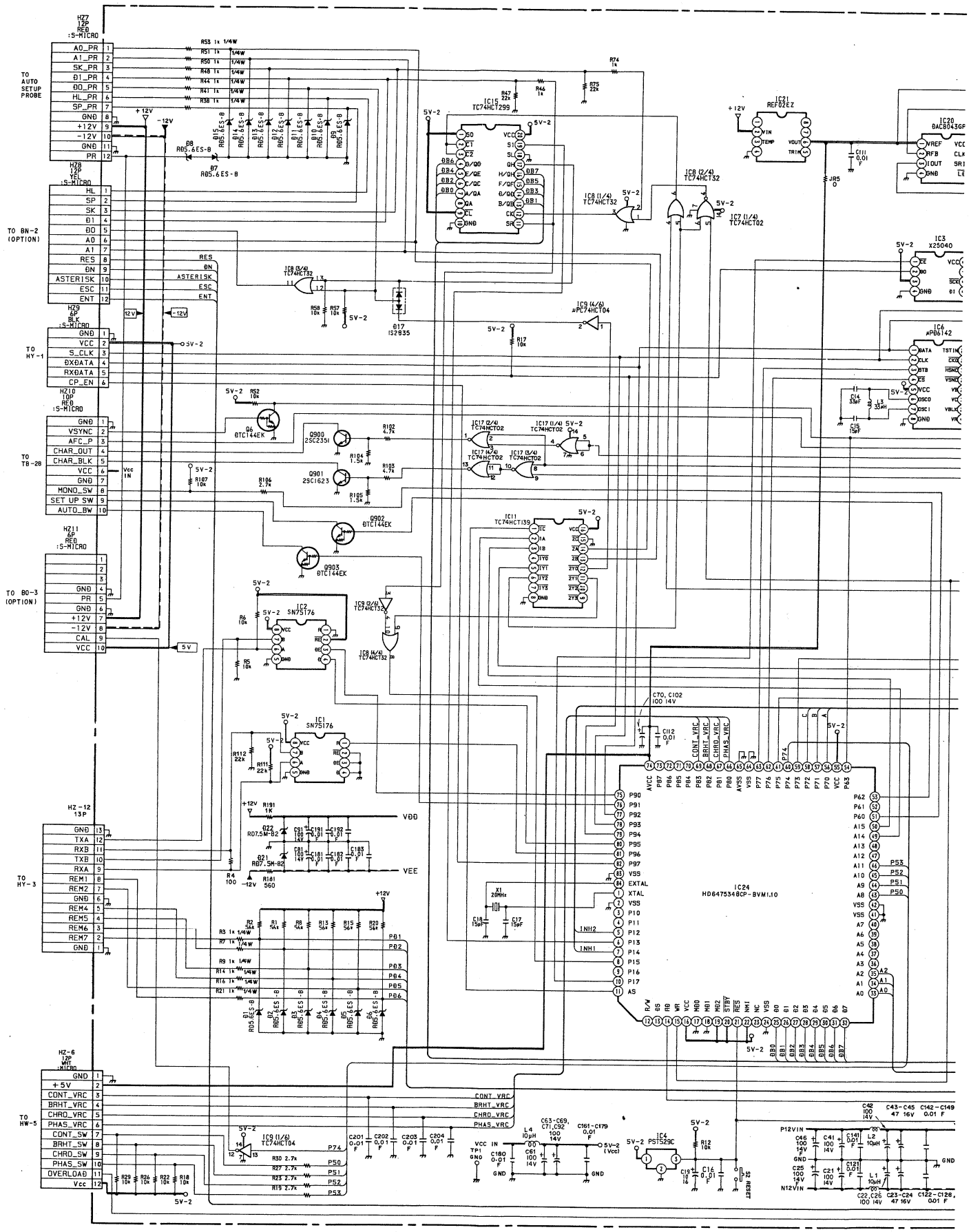


• ▒▒▒ : Pattern from the side which enables seeing.

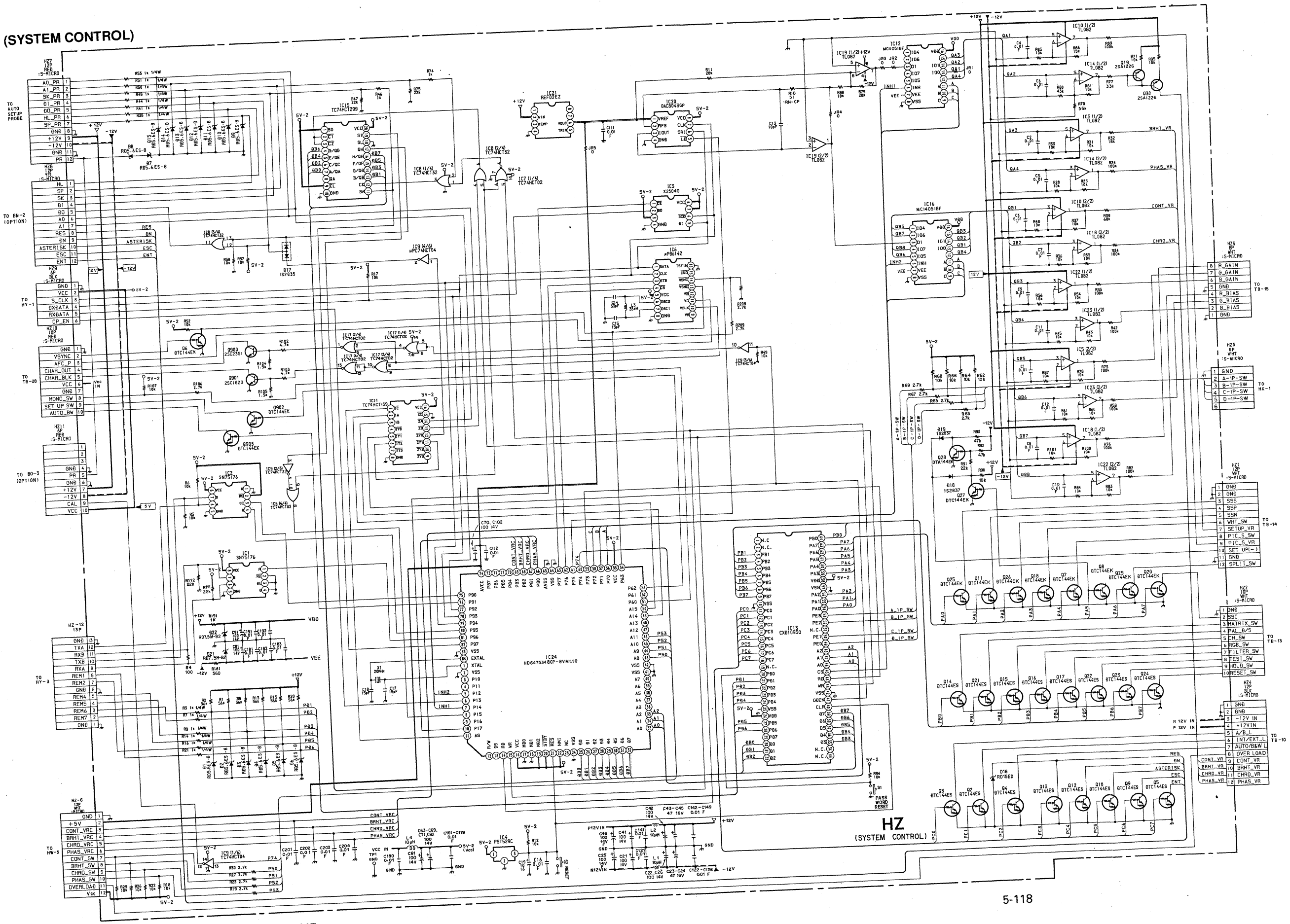
HZ BOARD

IC 1	SN75176BP	RECEIVER
2	SN75176BP	TRANSMITTER
3	X25040	NV RAM
4	PST529C	RESET
5	TL082M	OP AMP
6	uPD6142G-101	ON SCREEN D
7	TC74HCT02AF	NOR GATE
8	TC74HCT32AF	OR GATE
9	TC74HCT04AF	INVERTOR
10	TL082M	SAMPLE HOLD
11	TC74HCT139AF	DECODER
12	MC14051BF	DE-MULTIPLEXER
13	CXD1095Q	I/O EXPANDER
14	TL082M	SAMPLE HOLD
15	TC74HC299AF	SHIFT REGISTER
16	MC14051BF	DE-MULTIPLEXER
17	TC74HCT02AF	NOR GATE
18	TL082M	SAMPLE HOLD
19	TL082M	SAMPLE HOLD
20	DAC8043GP	D/A CONNECTOR
21	REF02EZ	REF. VOLTAGE
22	TL082M	SAMPLE HOLD
23	TL082M	SAMPLE HOLD
24	HD6475368CP-BVM	CPU
1		
Q 2	DTC144EK	OUTPUT BUFFER
3	DTC144EK	OUTPUT BUFFER
4	DTC144EK	OUTPUT BUFFER
5	DTC144EK	OUTPUT BUFFER
6	DTC144EK	BUFFER
7	DTC144EK	OUTPUT BUFFER
8	DTC144EK	OUTPUT BUFFER
9	DTC144EK	OUTPUT BUFFER
10	DTC144EK	OUTPUT BUFFER
11	DTC144EK	OUTPUT BUFFER
12	DTC144EK	OUTPUT BUFFER
13	DTC144EK	OUTPUT BUFFER
14	DTC144EK	OUTPUT BUFFER
15	DTC144EK	OUTPUT BUFFER
16	DTC144EK	OUTPUT BUFFER
17	DTC144EK	OUTPUT BUFFER
18	DTC144EK	OUTPUT BUFFER
19	2SA1226	OUTPUT BUFFER
20	DTC144EK	OUTPUT BUFFER
21	DTC144EK	OUTPUT BUFFER
22	DTC144EK	OUTPUT BUFFER
23	DTC144EK	OUTPUT BUFFER
24	DTC144EK	OUTPUT BUFFER
25	DTC144EK	OUTPUT BUFFER
26	DTC144EK	OUTPUT BUFFER
27	DTC144EK	OUTPUT BUFFER
28	DTC144EK	OUTPUT BUFFER
29	DTC144EK	OUTPUT BUFFER
30	2SA1226	OUTPUT BUFFER
900	2SC1623	OUTPUT BUFFER
901	2SC1623	OUTPUT BUFFER
902	DTC144EK	OUTPUT BUFFER
903	DTC144EK	OUTPUT BUFFER
D 1	RD5.6ES-T1B	PROTECTION
2	RD5.6ES-T1B	PROTECTION
3	RD5.6ES-T1B	PROTECTION
4	RD5.6ES-T1B	PROTECTION
5	RD5.6ES-T1B	PROTECTION
6	RD5.6ES-T1B	PROTECTION
7	RD5.6ES-T1B	PROTECTION
8	RD5.6ES-T1B	PROTECTION
9	RD5.6ES-T1B	PROTECTION
10	RD5.6ES-T1B	PROTECTION
11	RD5.6ES-T1B	PROTECTION
12	RD5.6ES-T1B	PROTECTION
13	RD5.6ES-T1B	PROTECTION
14	RD5.6ES-T1B	PROTECTION
15	RD5.6ES-T1B	PROTECTION
16	RD15MT1-B	
17	1S2835	SWITCH
18	1S2837	SWITCH
19	1S2837	SWITCH
21	RD7.5M-T1B2	-7.5V REG
22	RD7.5M-T1B2	+7.5V REG

HZ board (SYSTEM CONTROL)

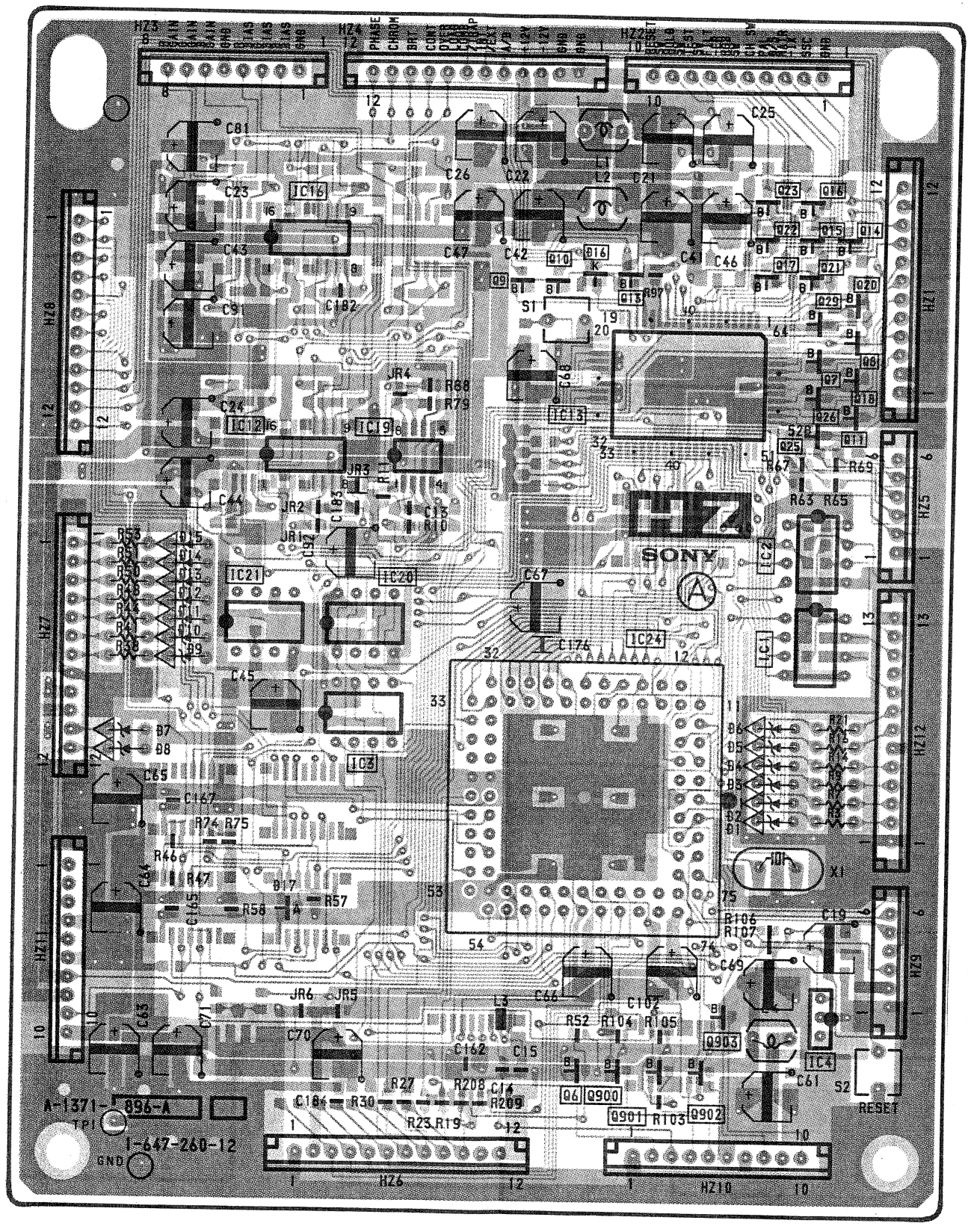


HZ board (SYSTEM CONTROL)



HZ board (SYSTEM CONTROL)
– CONDUCTOR SIDE –

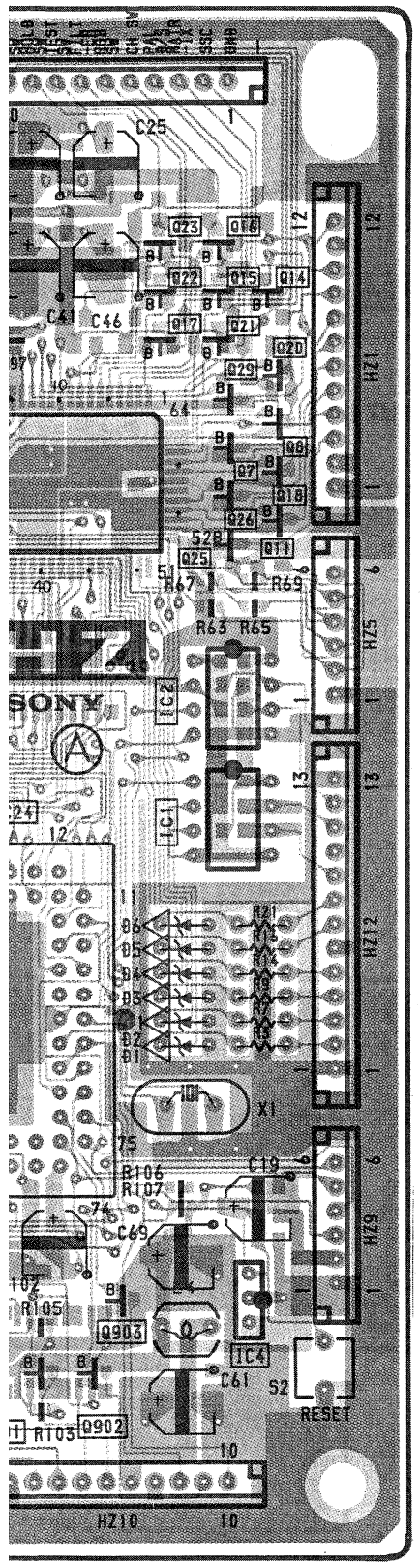
IC	Q	D,TP
16	23 16 22 15 14 9 10 13 17 21 20 29 8 7 18 26 11 25	16
13		
12 19		
2		15 14 13 12 11 10 9
21 20 1		
3		7 6 8 5 4 3 2 1
24		
		17
4	903	
	6 900 901 902	
		TP1



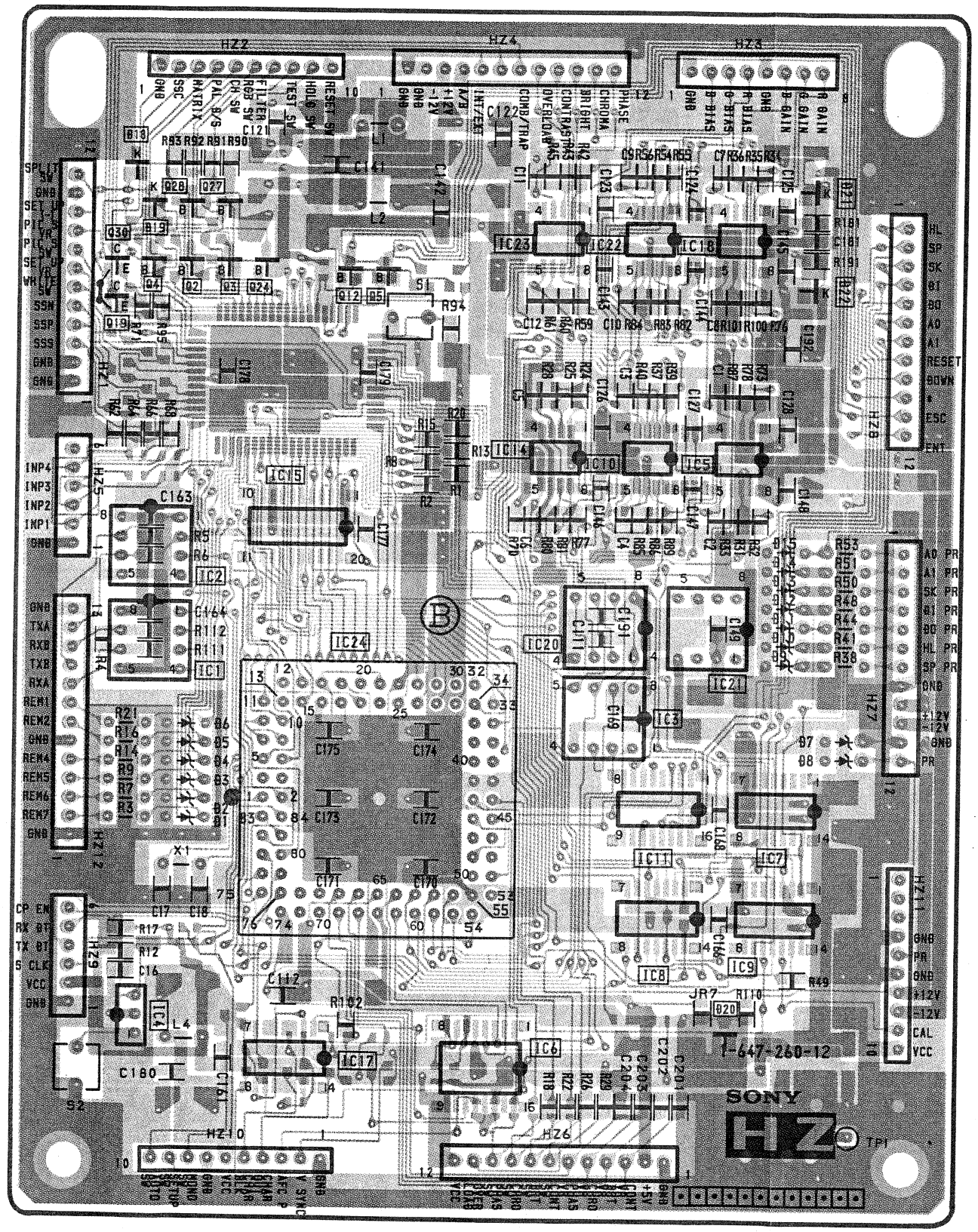
– COMPONENT SIDE –

IC	Q	D, TP
		18
	28,27	19 21
23 22 18		
	30 4 2 3 24 12 5	
	19	22
14 10 5		
2 15		
		15 14 13 12 11 10 9
1 20 21		
3		6 7 5 8 4 3 2 1
24		
11 7		
8 9		
4		20
17 6		
		TP1

– COMPONENT SIDE –



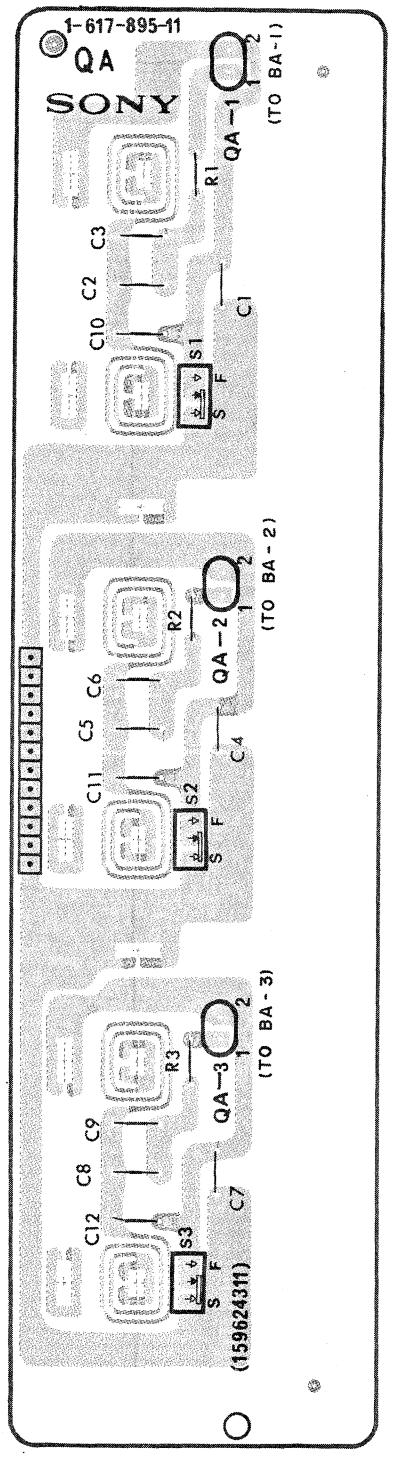
IC	Q	D, TP
		18
	28,27	19 21
23 22 18		
	30 4 2 3 24	
	19 12 5	22
14 10 5		
2 15		15
		14
		13
1 20 21		12
		11
		10
		9
3		6 7
		5 8
24		4
11 7		3
		2
		1
8 9		
4		20
17 6		
		TP1



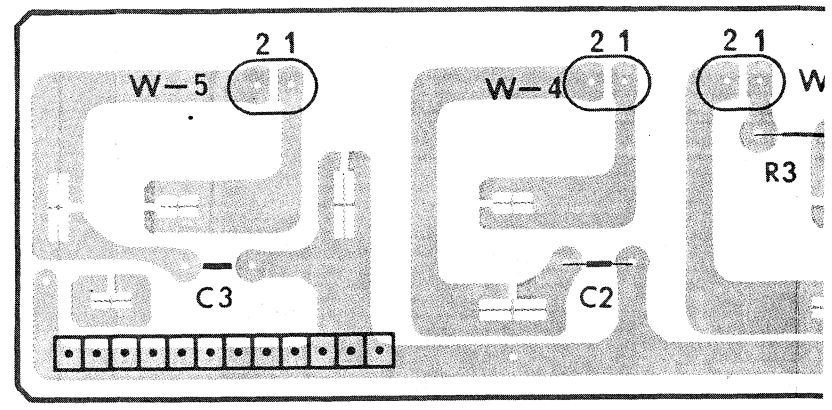
• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

GC, QA, QB, V, V2, W

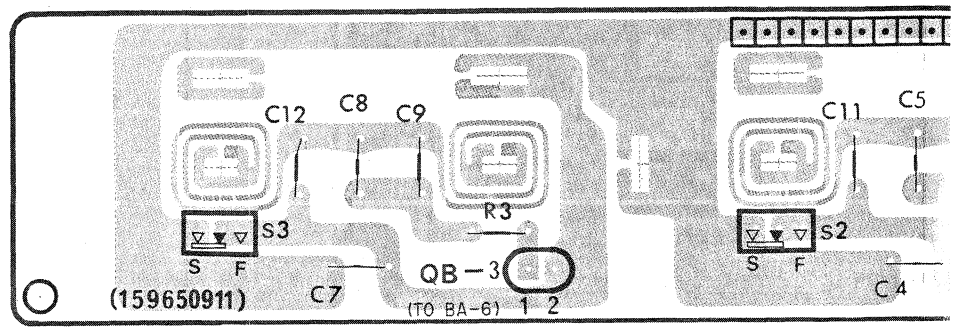
QA board (COMPOSITE VIDEO INPUT)



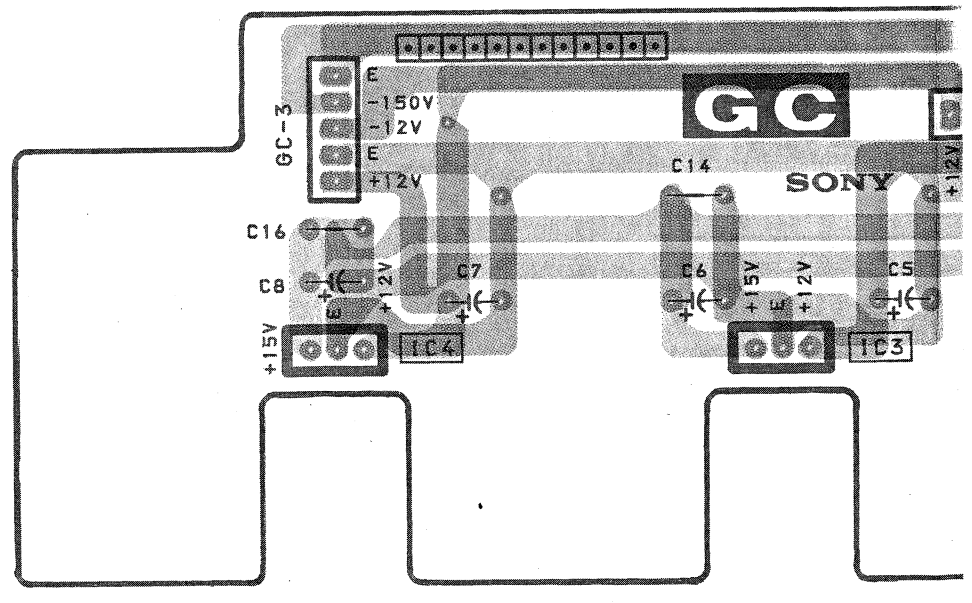
W board (RGB/COMPONENT)
(BVM-3011/3011P ONLY)



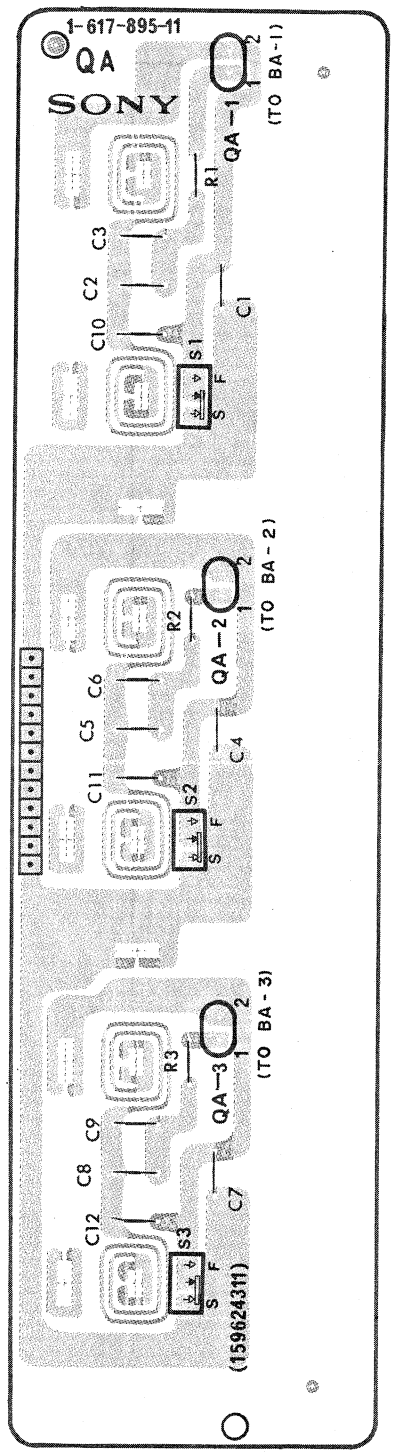
QB board (RGB/COMPONENT INPUT)



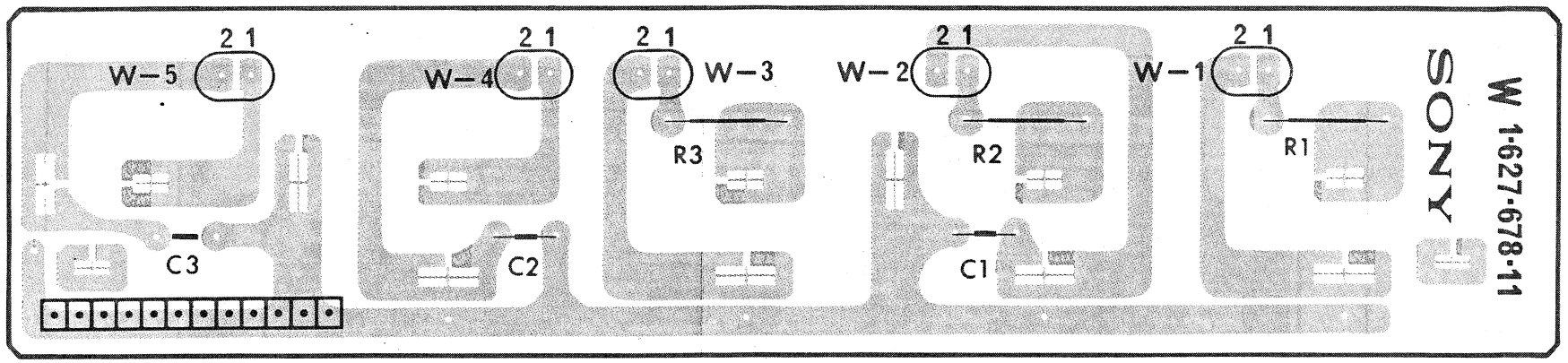
GC board (REG)



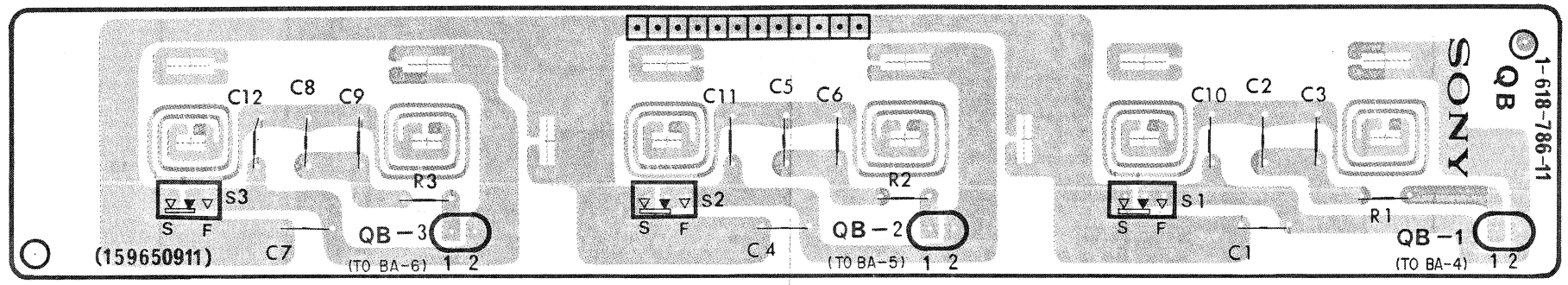
QA board (COMPOSITE VIDEO INPUT)



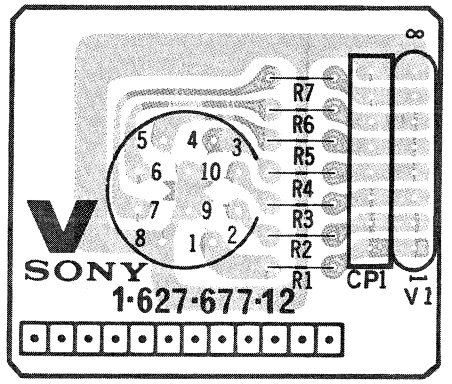
W board (RGB/COMPONENT)
(BVM-3011/3011P ONLY)



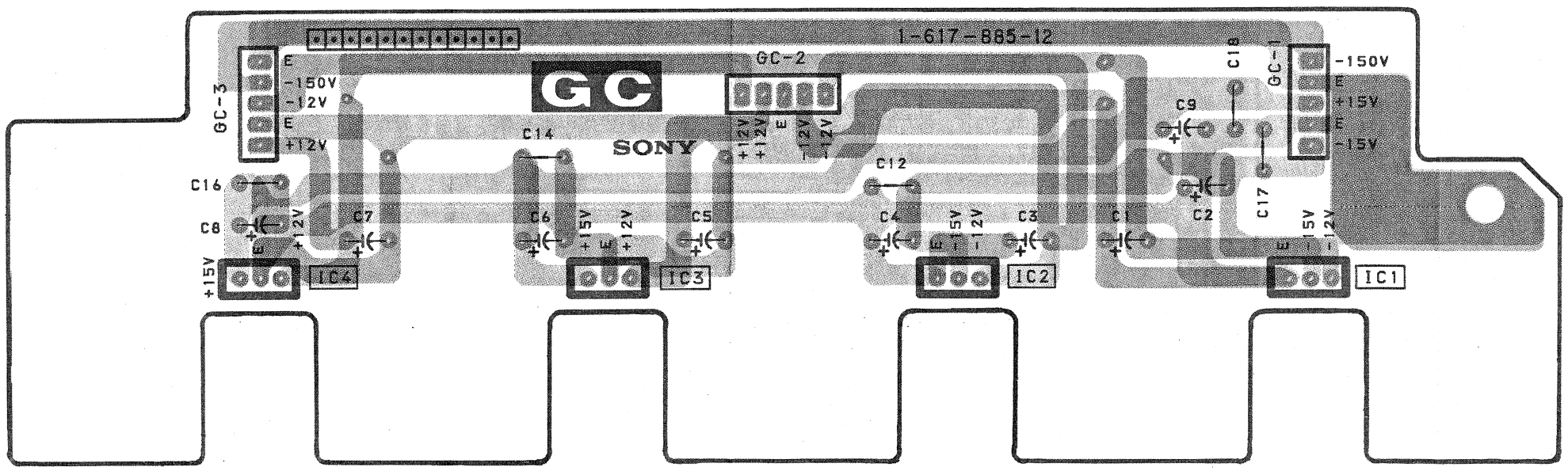
QB board (RGB/COMPONENT INPUT)



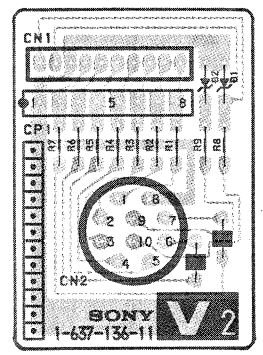
V board (REMOTE)
(BVM-3011/3011P ONLY)



GC board (REG)

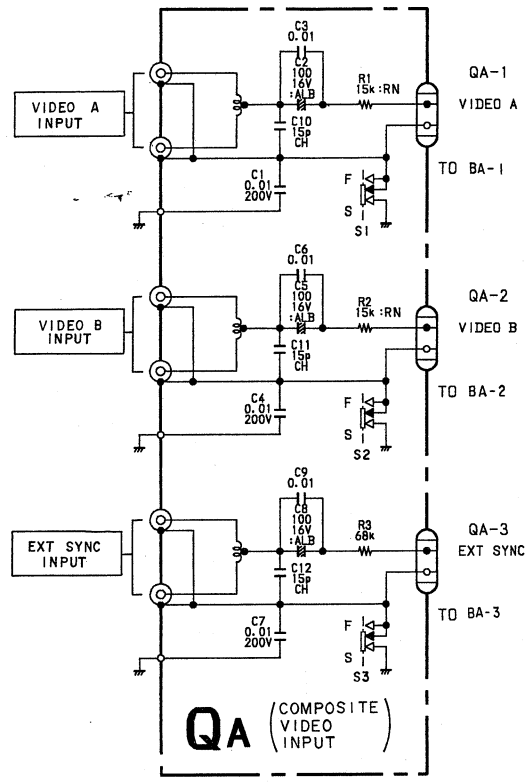


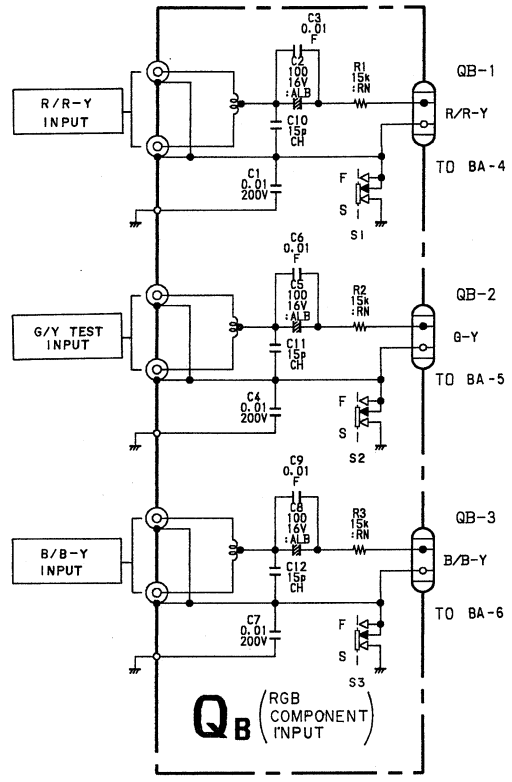
V2 board (REMOTE)
(BVM-2811 ONLY)

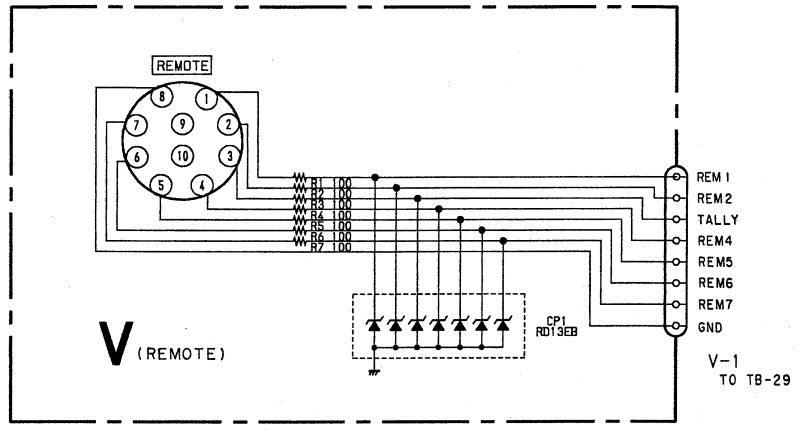


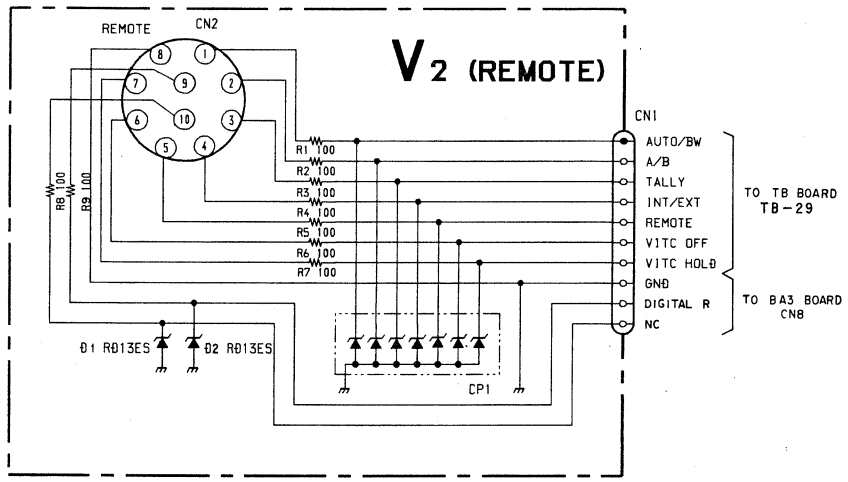
• : Pattern from the side which enables seeing.
• : Pattern of the rear side.

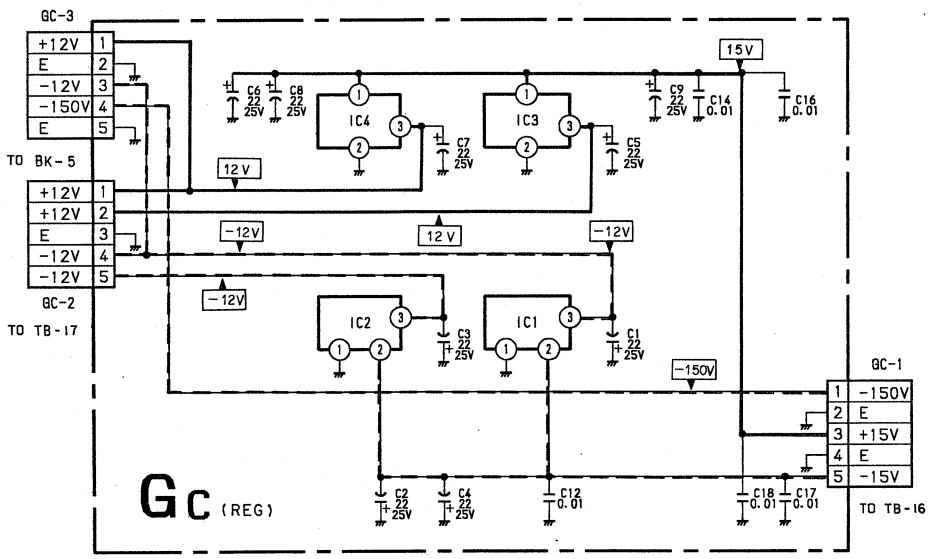
GC board (REG), QA board (COMPOSITE VIDEO INPUT), QB board (RGB/COMPONENT INPUT) V board (REMOTE) (BVM-3011/3011P ONLY), V2 board (REMOTE) (BVM-2811 ONLY), W board (RGB/COMPONENT) (BVM-3011/3011P ONLY)

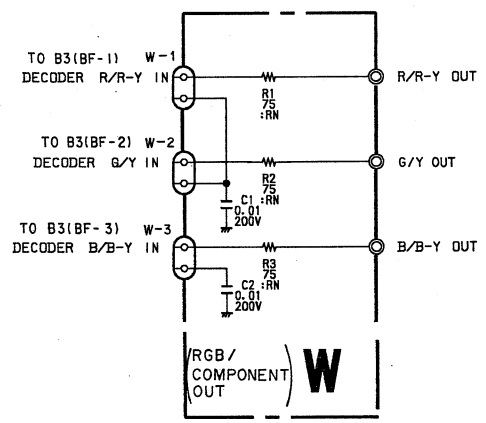






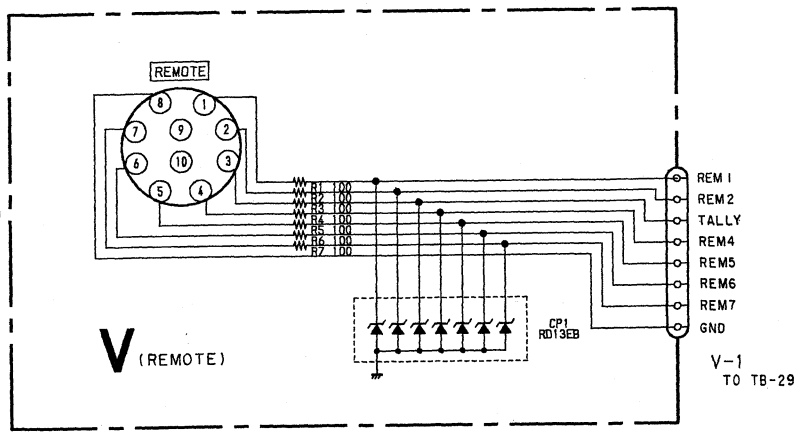


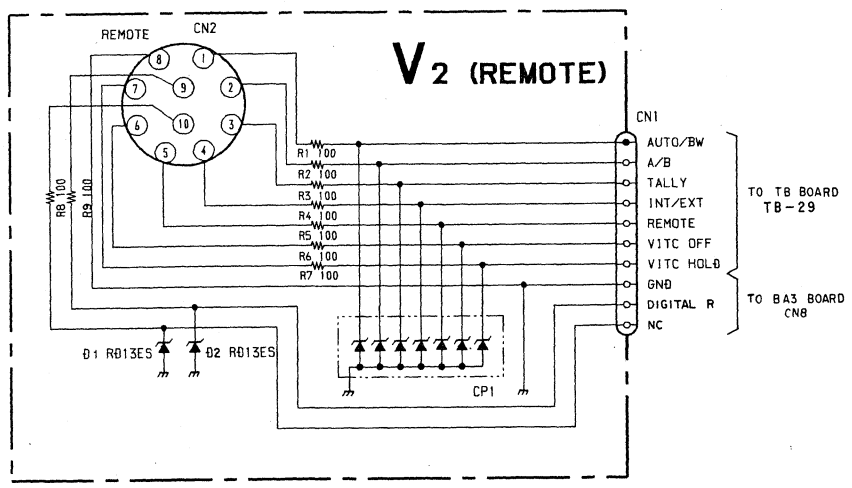


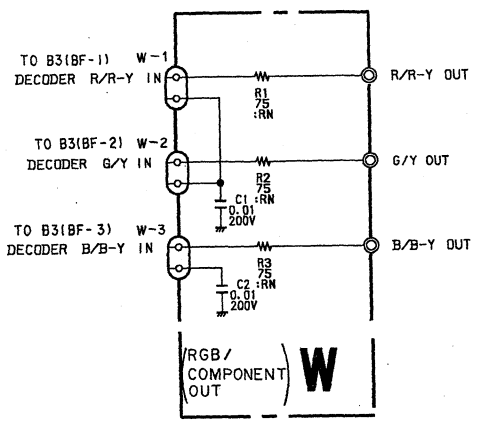


GC BOARD

IC	1	uPD7912H	–12V REG
	2	uPD7912H	–12V REG
	3	uPC2412HF	+12V REG
	4	uPC2412HF	+12V REG

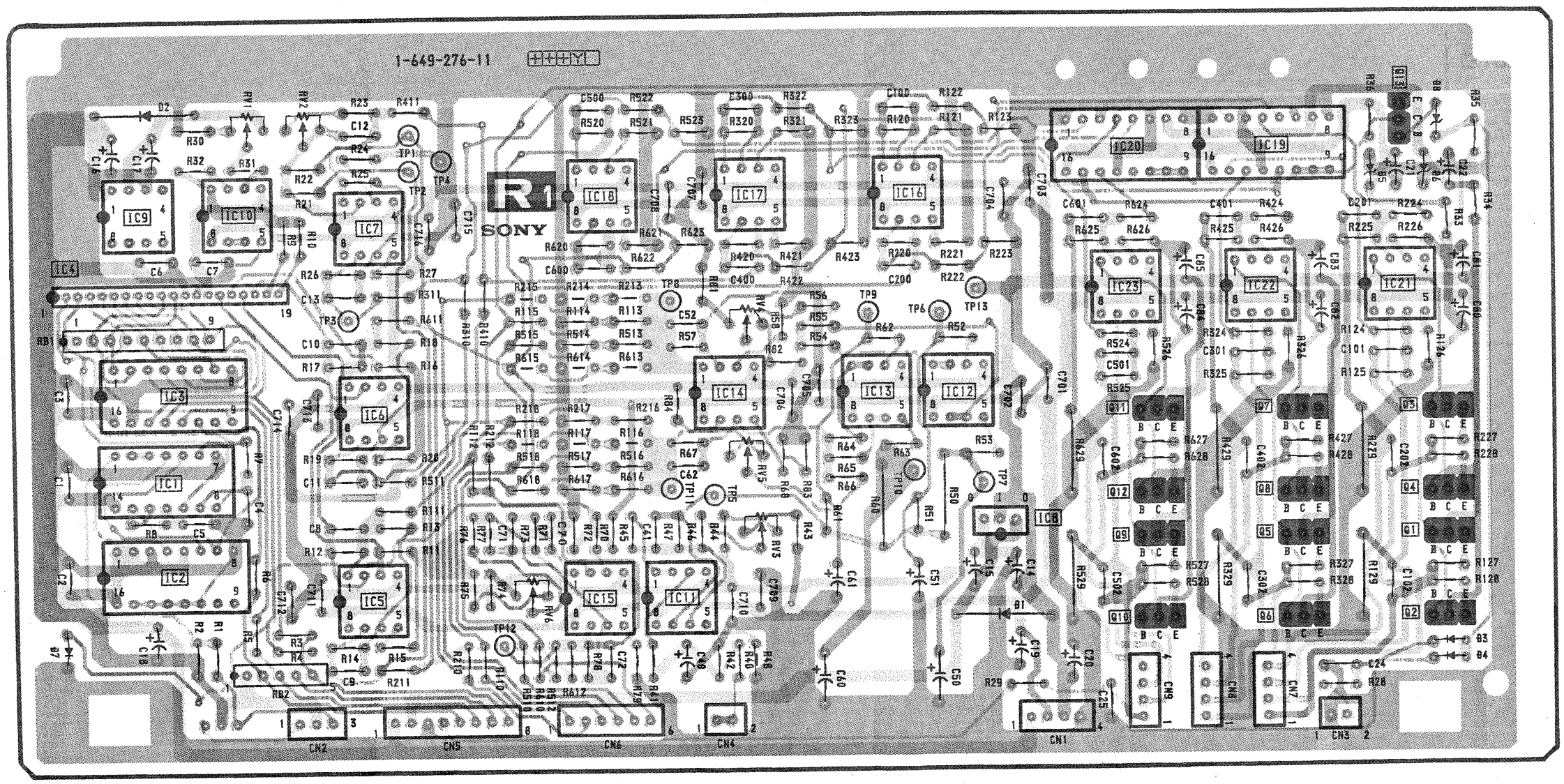

REMOTE
R1 100
R2 100
R3 100
R4 100
R5 100
R6 100
R7 100
REM 1
REM2
TALLY
REM4
REM5
REM6
REM7
GND
CP1
RD13EB
V (REMOTE)
V-1
TO TB-29


REMOTE
CN2
V2 (REMOTE)
R1 100
R2 100
R3 100
R4 100
R5 100
R6 100
R7 100
R8 100
R9 100
D1 RD13ES
D2 RD13ES
CP1
CN1
AUTO/BW
A/B
TALLY
INT/EXT
REMOTE
V1TC OFF
V1TC HOLD
GND
DIGITAL R
NC
TO TB BOARD
TB-29
TO BA3 BOARD
CN8

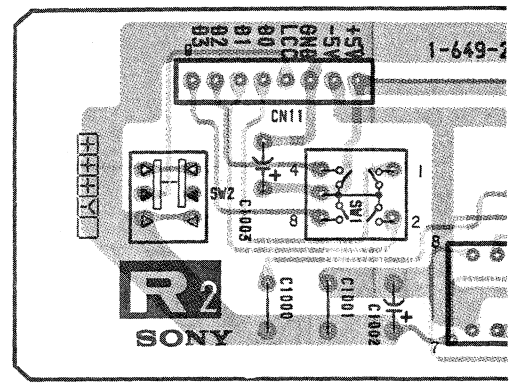

TO B3(BF-1) W-1
DECODER R/R-Y IN
R1
75
:RN
R/R-Y OUT
TO B3(BF-2) W-2
DECODER G/Y IN
R2
75
:RN
C1 :RN
0.01
200V
G/Y OUT
TO B3(BF-3) W-3
DECODER B/B-Y IN
R3
75
:RN
C2 :RN
0.01
200V
B/B-Y OUT
RGB/
COMPONENT
OUT
W

R1 board (LANDING CORRECTION)

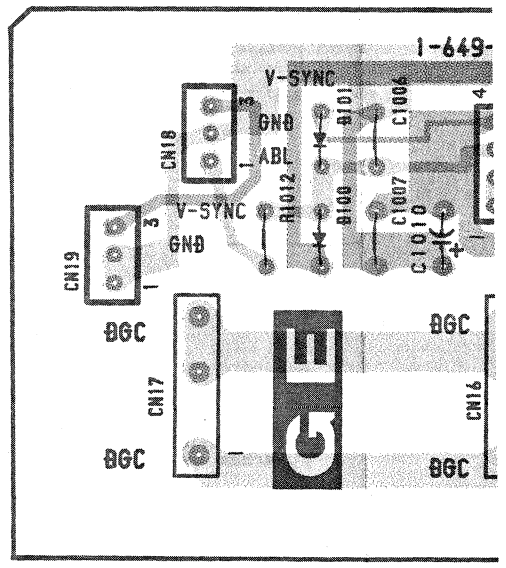
IC	9 4 3 1 2 10 7 6 5 18 15 17 14 11 16 13 12 8 20 23 19 22 21
Q	11 12 9 10 7 8 5 6 13 3 4 1 2
D	2 7 1 8 5 6 3 4
TP ADJ	RV1 RV2 TP1 TP2 TP4 RV6 TP12 TP8 TP11 RV4 RV5 RV3 TP5 TP9 TP6 TP13 TP10 TP7



R2 board (LANDING CONTROL)



GE board (RELAY)

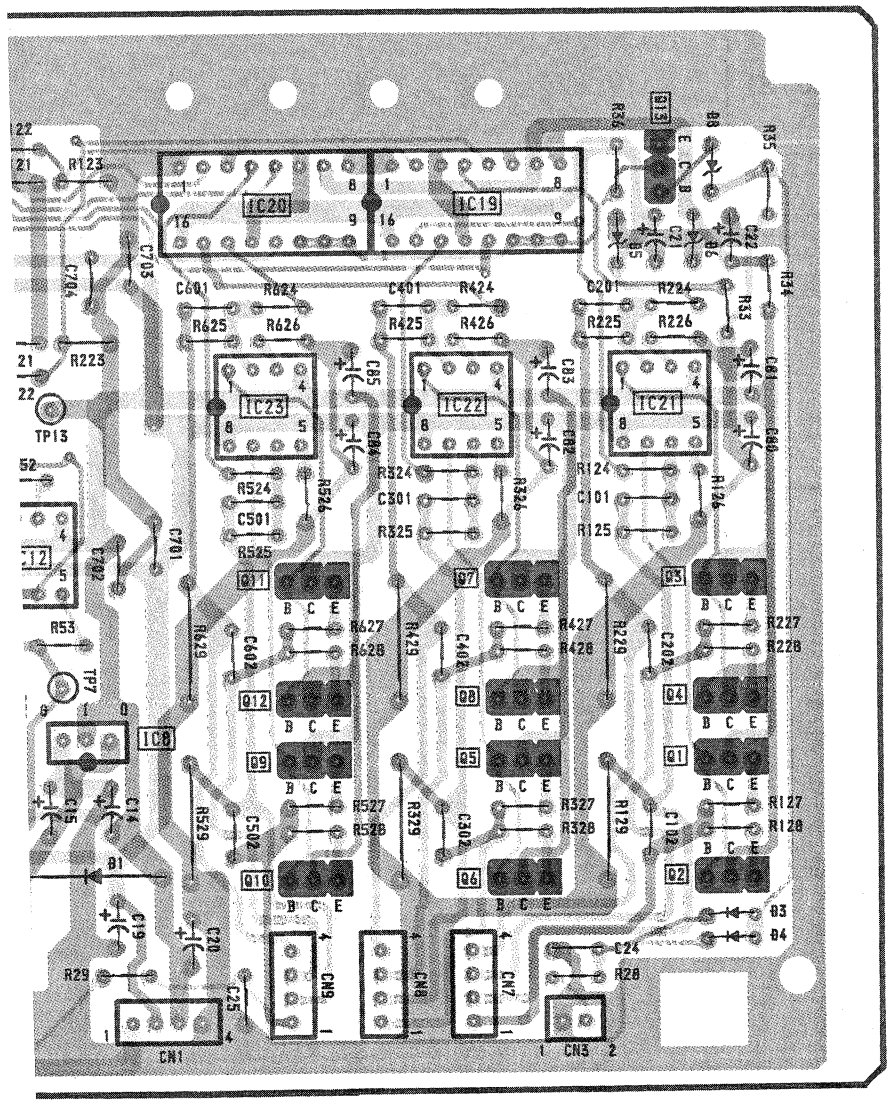


20 19
23 22 21
12
8

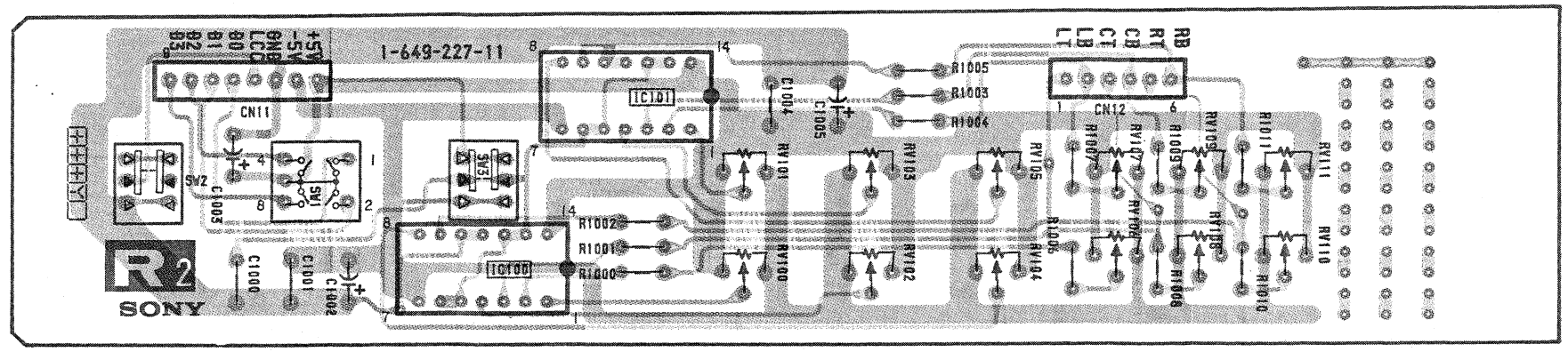
13
11 7 3
12 8 4
9 5 1
10 6 2

8
5 6
1 3
4

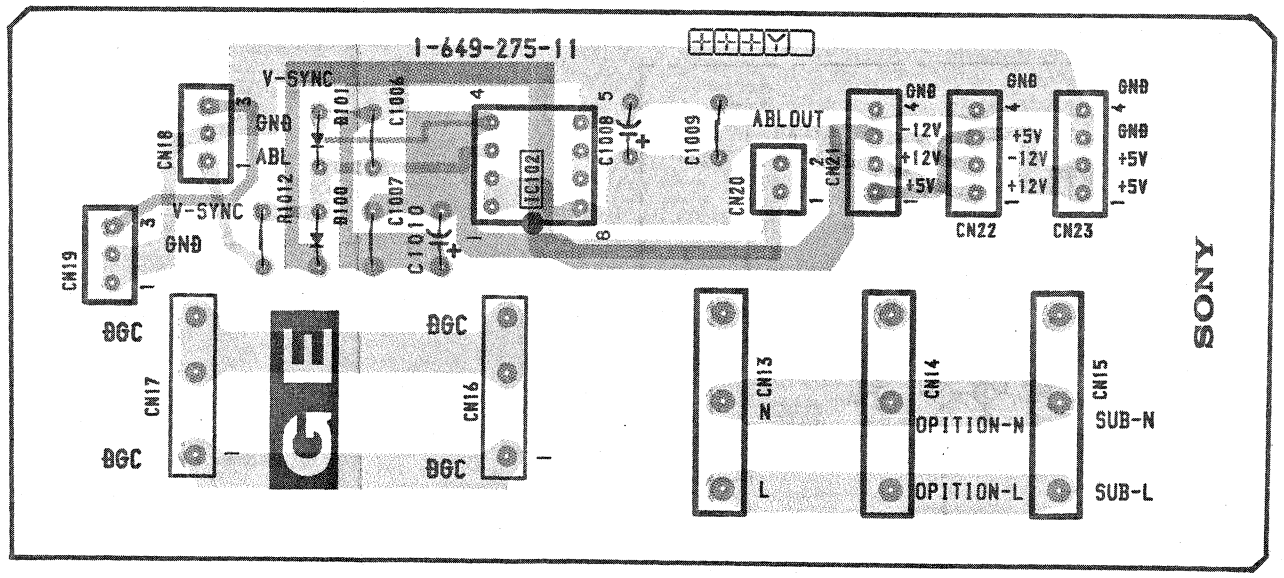
TPI3
'6
TP7



R2 board (LANDING CONTROL)

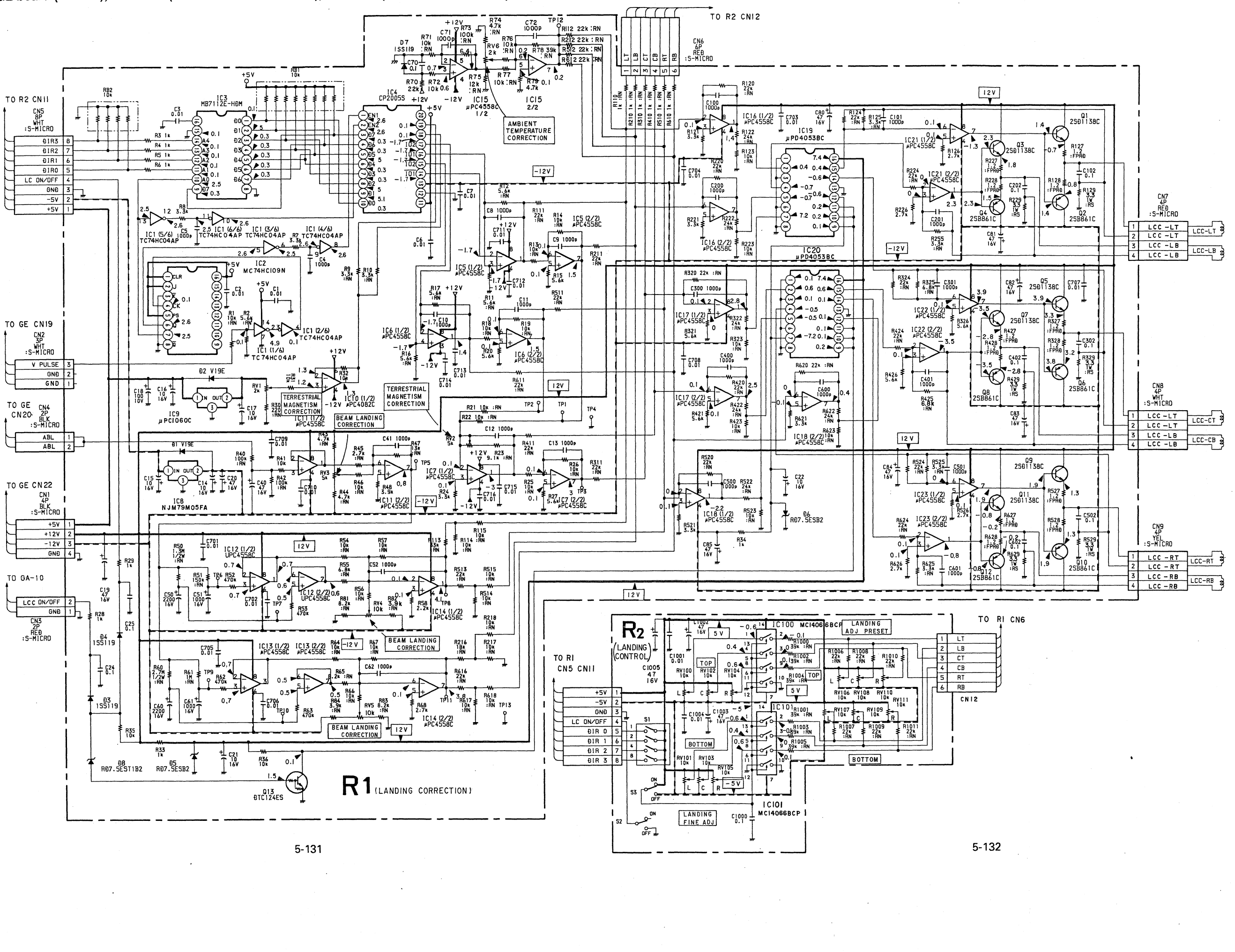


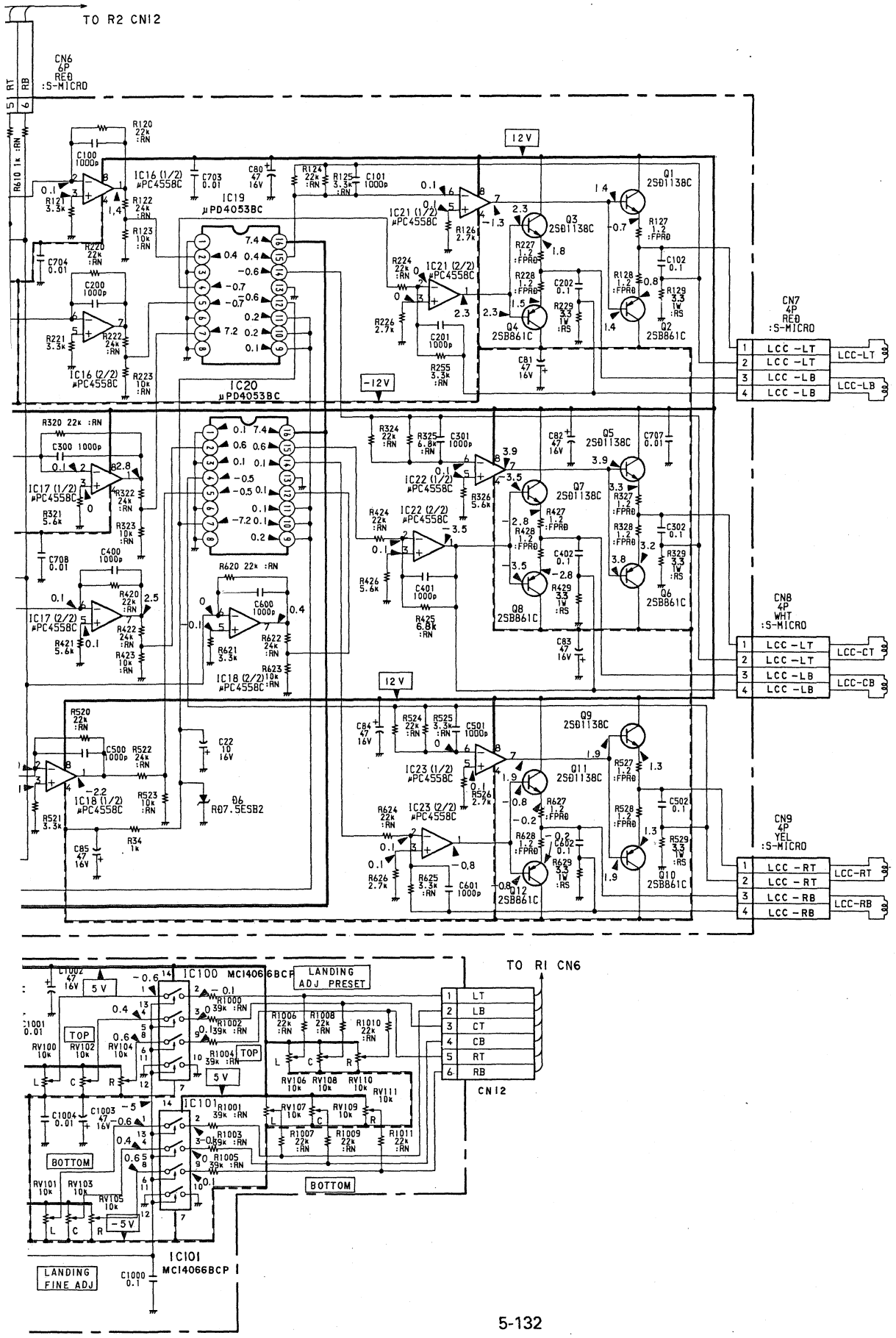
GE board (RELAY)

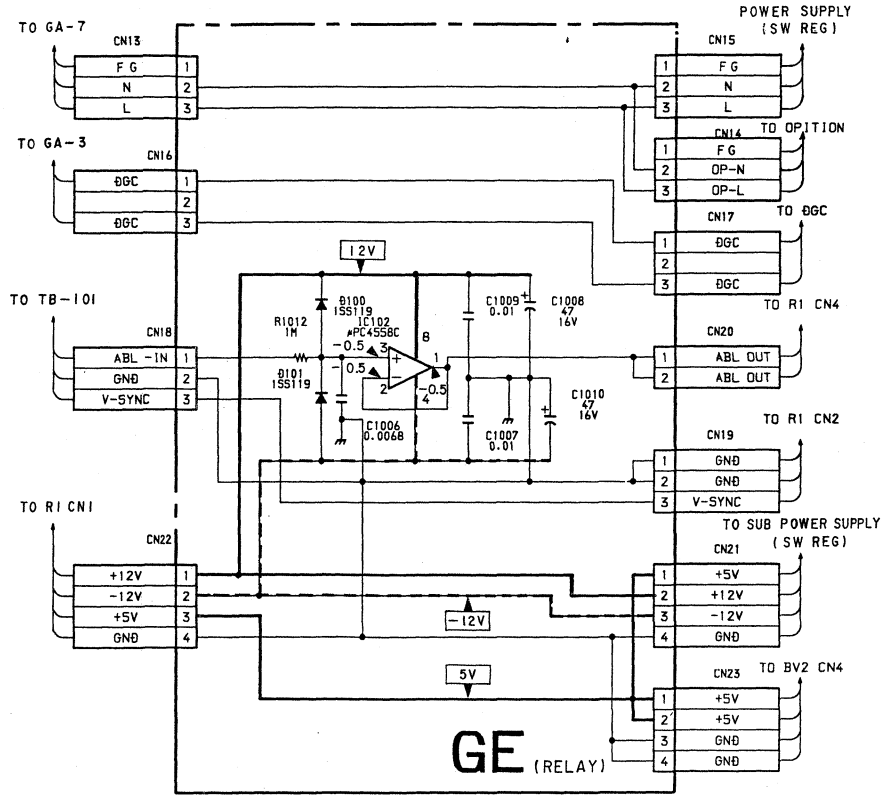


- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

GE board (RELAY), R1 board (LANDING CORRECTION), R2 board (LANDING CONTROL)







R1 board

IC 1	MC74HC04AN	BUFFER
2	MC74HC109N	FLIP FLOP
3	MB7112E-HDM	DATA MEMORY
4	CP2005S	LATCH & D/A
5	uPC4558C	D/A BUFFER & INVERTER 1
6	uPC4558C	D/A BUFFER & INVERTER 2
7	uPC4558C	SUM & INVERTER
8	NJM79M05FA	–5V POWER SUPPLY
9	uPC1060C	D/A REF VOL
10	uPC4082C	REF V BUFFER
11	uPC4558C	BUFFER & AMP 1
12	uPC4558C	BUFFER 1
13	uPC4558C	BUFFER 2
14	uPC4558C	SUM AMP 1
15	uPC4558C	BUFFER & AMP 2
16	uPC4558C	SUM AMP 2
17	uPC4558C	SUM AMP 3
18	uPC4558C	SUM AMP 4
19	uPD4053BC	SWITCH 1
20	uPD4053BC	SWITCH 2
21	uPC4558C	OUTPUT STAGE DRIVE 1
22	uPC4558C	OUTPUT STAGE DRIVE 2
23	uPC4558C	OUTPUT STAGE DRIVE 3
Q 1	2SD1138	LCC DRIVE OUT 1
2	2SB861	LCC DRIVE OUT 1
3	2SD1138	LCC DRIVE OUT 2
4	2SB861	LCC DRIVE OUT 2
5	2SD1138	LCC DRIVE OUT 3
6	2SB861	LCC DRIVE OUT 3
7	2SD1138	LCC DRIVE OUT 4
8	2SB861	LCC DRIVE OUT 4
9	2SD1138	LCC DRIVE OUT 5
10	2SB861	LCC DRIVE OUT 5
11	2SD1138	LCC DRIVE OUT 6
12	2SB861	LCC DRIVE OUT 6
13	DTC124ES	OUTPUT CONTROL
D 1	V19EF1	PROTECT 1
2	V19EF1	PROTECT 2
3	1SS119	SW1
4	1SS119	SW2
5	RD7.5ESB2	7.5V REG
6	RD7.5ESB2	–7.5V REG
7	1SS119	TEMP SENSER
8	RD7.5ESB2	LCC SW

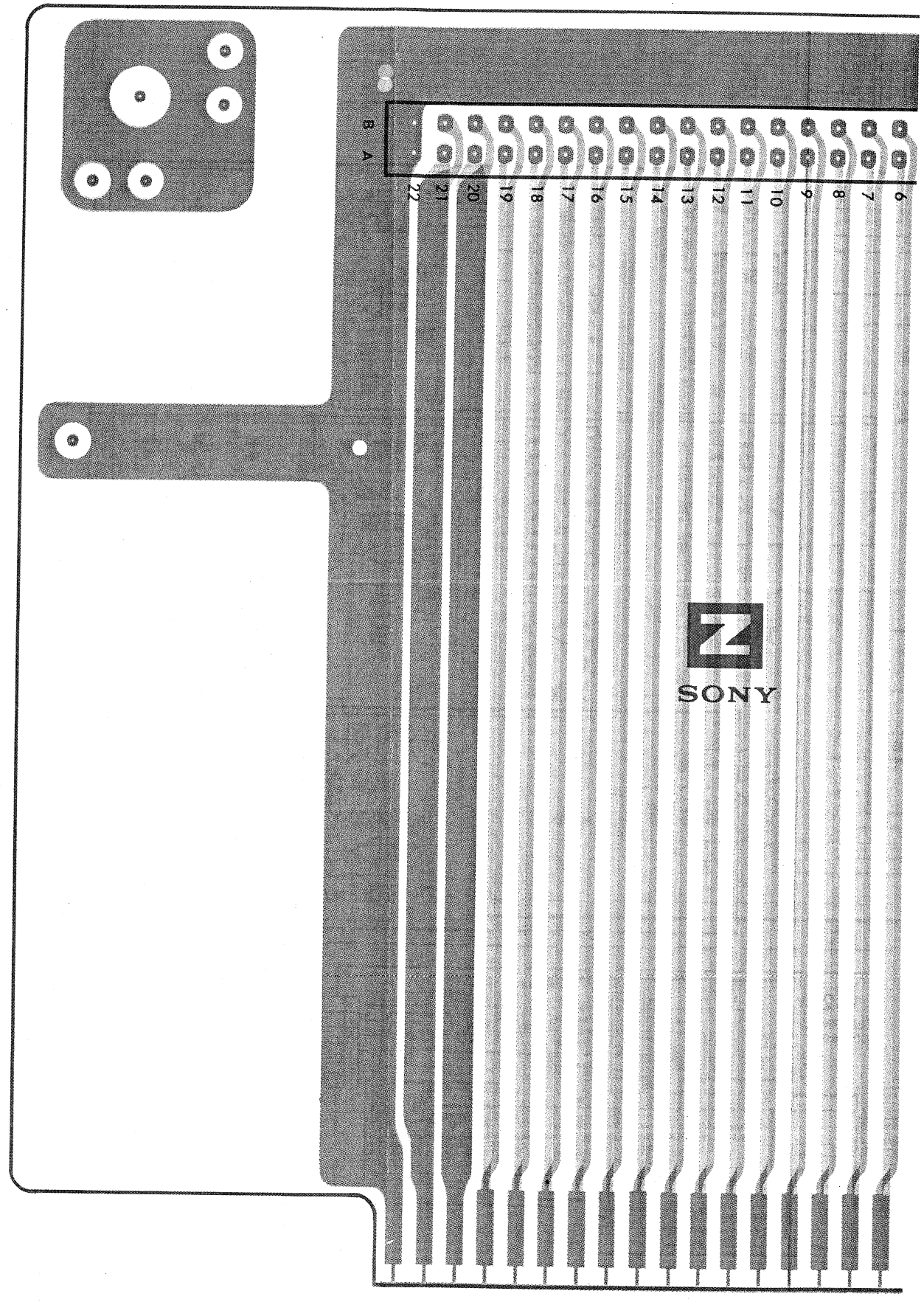
R2 board

IC 1	MC14066BCP	SWITCH 1
2	MC14066BCP	SWITCH 2

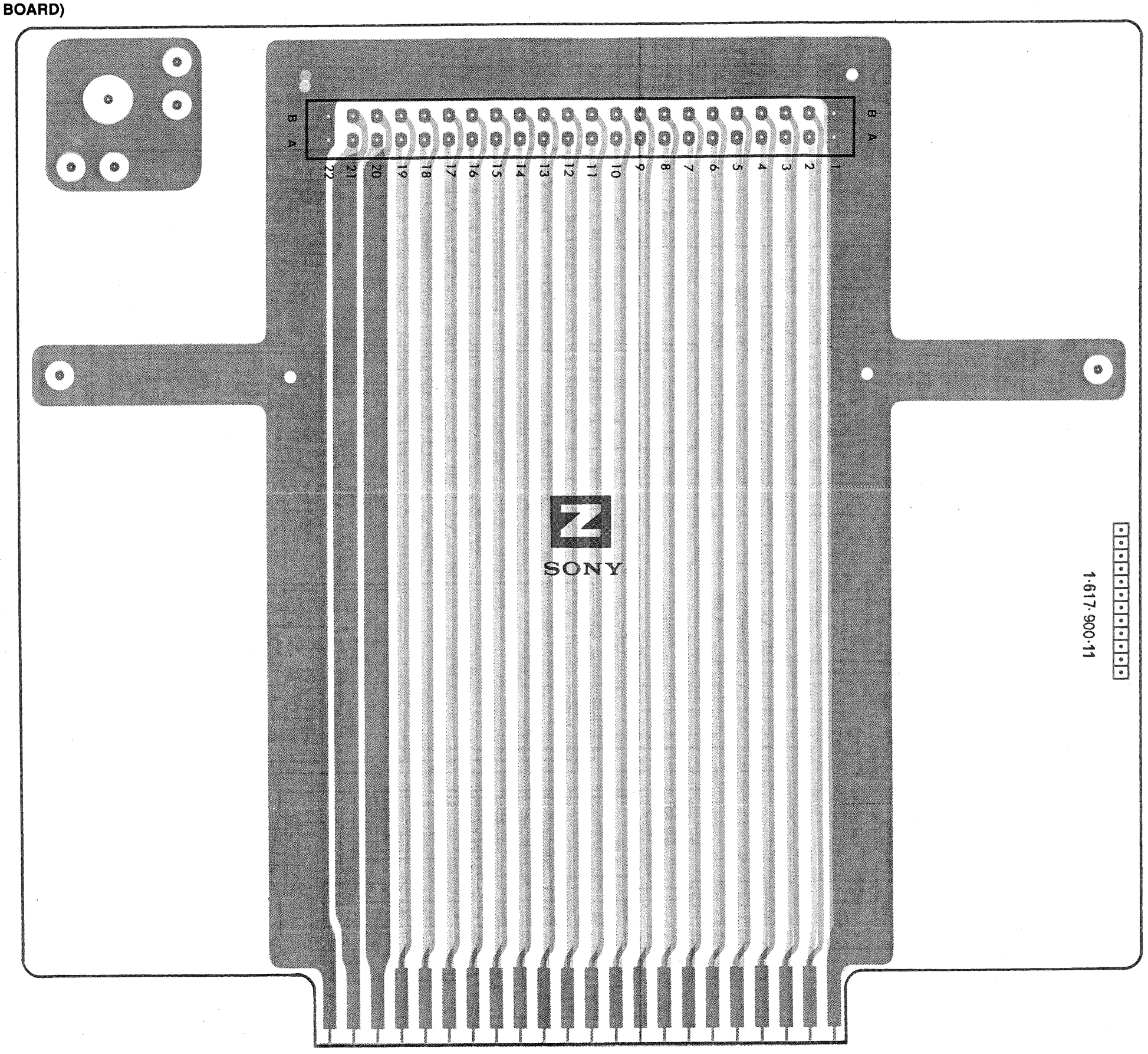
GE board

IC102	uPC4558C	BUFFER
D100	1SS119	PROTECT
101	1SS119	PROTECT

Z board (EXTESION BOARD)



XTESION BOARD)

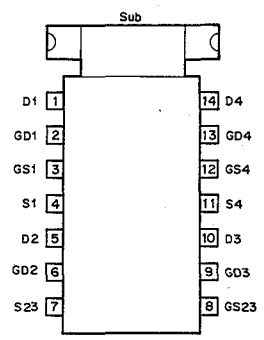


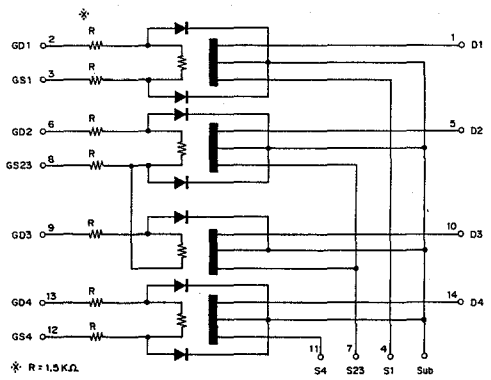
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

5-4. SEMICONDUCTORS

CX-718D (SONY)

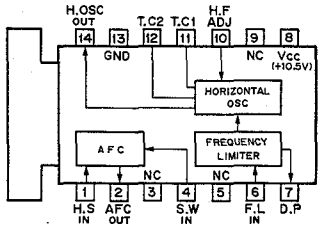
SRG FET IC
– TOP VIEW –





CX158 (SONY)

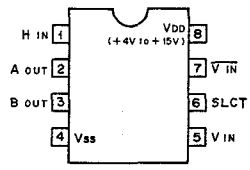
HORIZONTAL DEFLECTION OSCILLATOR/FREQUENCY LIMITER
– TOP VIEW –



D.P ; DISCHARGE PROTECTION
F.L IN ; FREQUENCY LIMITTER IN
H.F ADJ ; HORIZONTAL FREQUENCY ADJ
H.OSC OUT ; HORIZONTAL OSCILLATOR OUT
H.S IN ; HORIZONTAL SYNC IN
S.W IN ; SAW WAVE IN
T.C 1/2 ; TIME CONSTANT 1/2

CX23025 (FUJI ELECT)

C-MOS SYNC SIGNAL DISCRIMINATOR
– TOP VIEW –



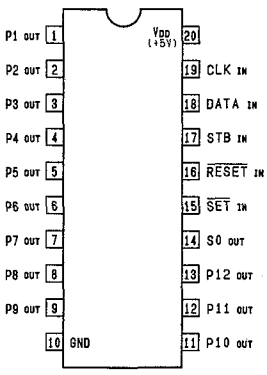
HIN / VIN	AOUT	BOUT
50/625	0	1
60/525	1	0

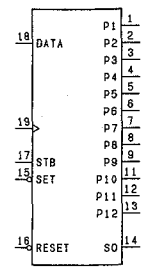
O : LOW LEVEL
1 : HIGH LEVEL

PIN NO.	SYMBOL	FUNCTION
1	HIN	HORIZONTAL SYNC SIGNAL INPUT
2	AOUT	OUTPUT FOR DISCRIMINATING SYNC SIGNAL SPECIFICATION
3	BOUT	OUTPUT FOR DISCRIMINATING SYNC SIGNAL SPECIFICATION
4	VSS	GND
5	VIN	VERTICAL SYNC SIGNAL INPUT
6	SLCT	POWER ON INITIALIZE SELECT INPUT
7	$\overline{V_{IN}}$	VERTICAL SYNC SIGNAL INPUT
8	VDD	POWER SUPPLY

CX7991 (SONY)

C-MOS 12-BIT SERIAL TO PARALLEL CONVERTER
– TOP VIEW –

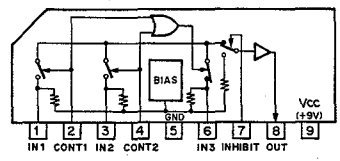




CLK ;CLOCK
DATA ;SERIAL DATA INPUT
P1-P12;PARALLEL DATA
RESET ;RESET SIGNAL
SET ;SET SIGNAL
SO ;SERIAL DATA OUTPUT
STB ;STROBE SIGNAL

CX894 (SONY)

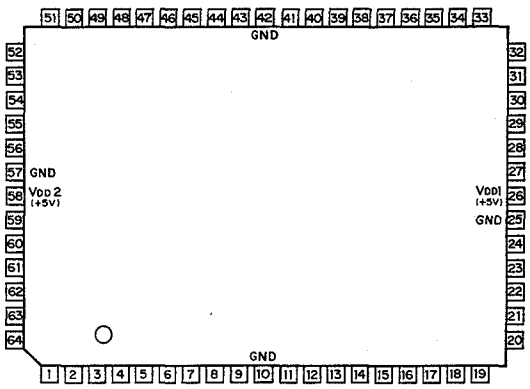
3 INPUT SWITCH
– SIDE VIEW –



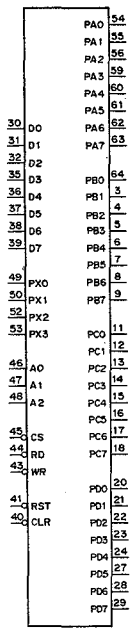
CXD1095Q (SONY) FLAT PACKAGE

C-MOS I/O PORT EXPANDER

– TOP VIEW –



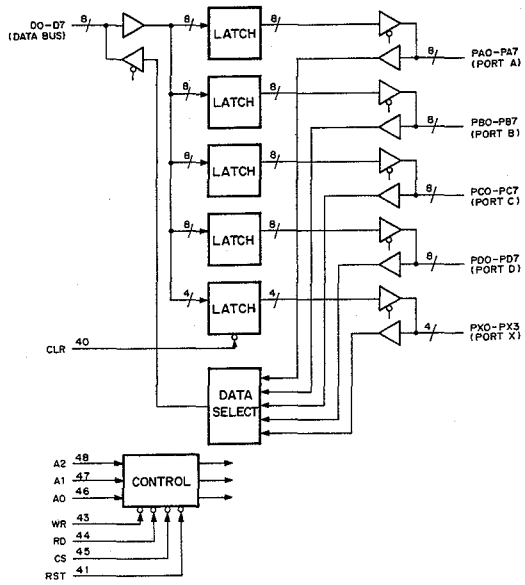
PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	O	O	PC6	33			NC	49	O	O	PX0
2			NC	18	O	O	PC7	34			NC	50	O	O	PX1
3	O	O	PB1	19			NC	35	O	O	D3	51			NC
4	O	O	PB2	20	O	O	PD0	36	O	O	D4	52	O	O	PX2
5	O	O	PB3	21	O	O	PD1	37	O	O	D5	53	O	O	PX3
6	O	O	PB4	22	O	O	PD2	38	O	O	D6	54	O	O	PA0
7	O	O	PB5	23	O	O	PD3	39	O	O	D7	55	O	O	PA1
8	O	O	PB6	24	O	O	PD4	40	O		CLR	56	O	O	PA2
9	O	O	PB7	25			GND	41	O		RST	57			GND
10			GND	26	O		VDD (+5V)	42			GND	58	O		VDD (+5V)
11	O	O	PC0	27	O	O	PD5	43	O		WR	59	O	O	PA3
12	O	O	PC1	28	O	O	PD6	44	O		RD	60	O	O	PA4
13	O	O	PC2	29	O	O	PD7	45	O		CS	61	O	O	PA5
14	O	O	PC3	30	O	O	D0	46	O		A0	62	O	O	PA6
15	O	O	PC4	31	O	O	D1	47	O		A1	63	O	O	PA7
16	O	O	PC5	32	O	O	D2	48	O		A2	64	O	O	PB0



CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A → DATA BUS
0	0	1	0	0	1	PORT B → DATA BUS
0	0	1	0	1	0	PORT C → DATA BUS
0	0	1	0	1	1	PORT D → DATA BUS
0	0	1	1	0	0	PORT X → DATA BUS
0	0	1	1	0	1	——
0	0	1	1	1	0	——
0	0	1	1	1	1	——
0	1	0	0	0	0	DATA BUS → PORT A
0	1	0	0	0	1	DATA BUS → PORT B
0	1	0	0	1	0	DATA BUS → PORT C
0	1	0	0	1	1	DATA BUS → PORT D
0	1	0	1	0	0	DATA BUS → PORT X
0	1	0	1	0	1	——
0	1	0	1	1	0	DATA BUS → CTL REG.1
0	1	0	1	1	1	DATA BUS → CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI-Z

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z, HIGH IMPEDANCE

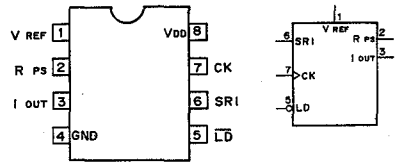
DO–D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0–A2 ; ADDRESS INPUT
RST ; RESET INPUT
CLR ; CLEAR INPUT
PA0–PA7 ; PORT A INPUTS/OUTPUTS
PB0–PB7 ; PORT B INPUTS/OUTPUTS
PC0–PC7 ; PORT C INPUTS/OUTPUTS
PD0–PD7 ; PORT D INPUTS/OUTPUTS
PX0–PX3 ; PORT X INPUTS/OUTPUTS

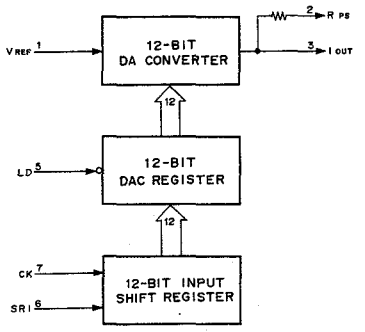


DAC-8043GP (PMI)

C-MOS 12-BIT SERIAL INPUT D/A CONVERTER

– TOP VIEW –

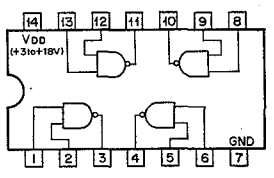


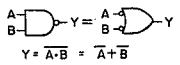


HD14011BP (HITACHI)
MC14011BCP (MOTOROLA)
TC4011BP (TOSHIBA)
UPD4011BC (NEC)

C-MOS 2-INPUT NAND GATE

– TOP VIEW –



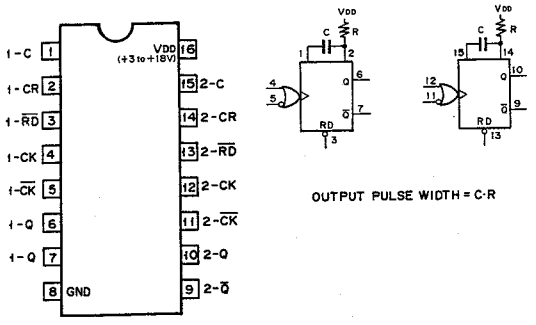


A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

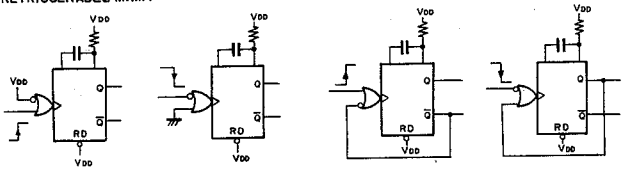
HD14538BP (HITACHI)

C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS
– TOP VIEW –



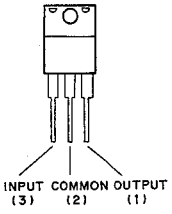
RETRIGGERABLE M.M.V

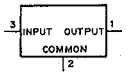
NON-RETRIGGERABLE M.M.V



LM7812CT (NSC) + 12V
NJM7812FA (JRC) + 12V

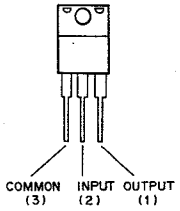
POSITIVE VOLTAGE REGULATOR (500mA)
– FRONT VIEW –

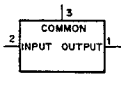




LM7912CT (NS) – 12V
NJM79M05FA (JRC) – 5V

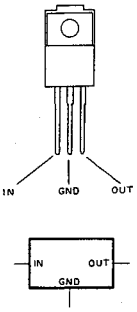
NEGATIVE VOLTAGE REGULATOR (500mA)
– FRONT VIEW –





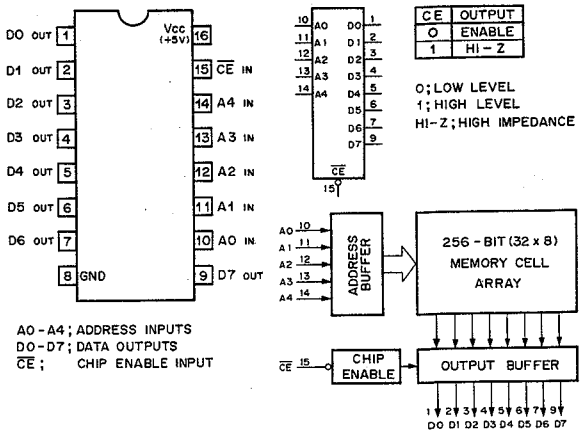
M5F78M12L (MITSUBISHI) + 12V

POSITIVE VOLTAGE REGULATOR (500mA)
– PRINTED SIDE VIEW –



MB7112E (FUJITSU)

256-BIT (32x8) PROM WITH 3-STATE OUTPUT
– TOP VIEW –

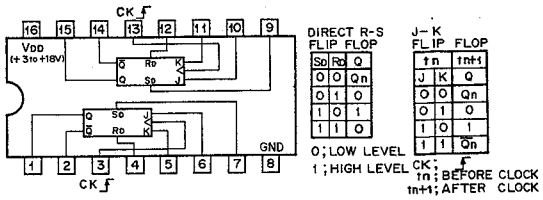


CE	OUTPUT
0	ENABLE
1	HI – Z

0; LOW LEVEL
1; HIGH LEVEL
HI-Z; HIGH IMPEDANCE

MB84027B (FUJITSU)
TC504027BP (TOSHIBA)

C-MOS J-K MASTER SLAVE FLIP-FLOP WITH DIRECT SET/RESET
– TOP VIEW –



DIRECT R-S FLIP FLOP

Sp	Rp	Q
0	0	Qn
0	1	0
1	0	1
1	1	0

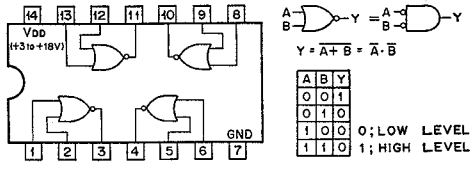
J-K FLIP FLOP

tn	tn+1
J	K	Q
0	0	Qn
0	1	0
1	0	1
1	1	$\overline{Qn}$

0; LOW LEVEL
1; HIGH LEVEL
CK; tn; BEFORE CLOCK
tn+1; AFTER CLOCK

MC14001BCP (MOTOROLA)
UPD4001BC (NEC)

C-MOS 2-INPUT NOR GATE
– TOP VIEW –

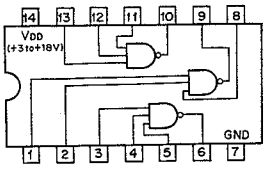


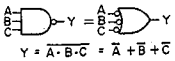
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

MC14023BCP (MOTOROLA)
TC4023BP (TOSHIBA)

C-MOS 3-INPUT NAND GATE
– TOP VIEW –



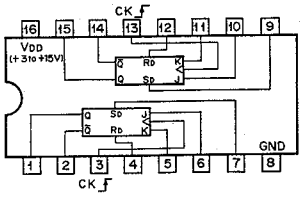


A	B	C	Y
X	X	0	1
X	0	X	1
0	X	X	1
1	1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC14027BCP (MOTOROLA)

C-MOS J-K MASTER SLAVE FLIP-FLOP WITH DIRECT SET/RESET
– TOP VIEW –



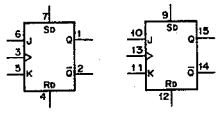
DIRECT R-S FLIP FLOP

Sp	Rp	Q
0	0	Qn
0	1	0
1	0	1
1	1	1

J-K FLIP FLOP

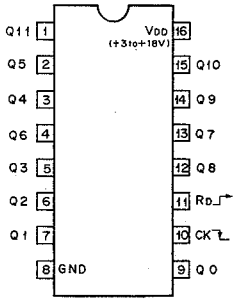
tn	tn+1
J	K	Q
0	0	Qn
0	1	0
1	0	1
1	1	Q̄n

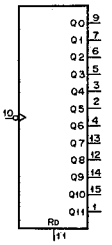
0 ; LOW LEVEL
1 ; HIGH LEVEL
CK; ↓ tn; BEFORE CLOCK
tn+1; AFTER CLOCK

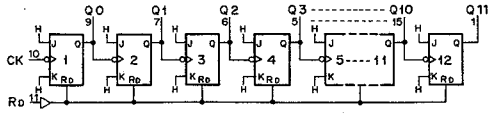


MC14040BCP (MOTOROLA)
TC4040BP (TOSHIBA)

C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER
– TOP VIEW –







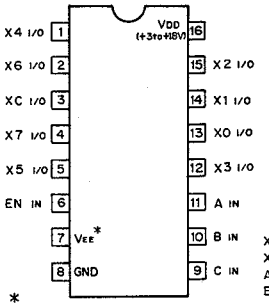
COUNT	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	1	0
3	0	0	0	0	0	0	0	0	0	0	1	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
4095	1	1	1	1	1	1	1	1	1	1	1	1

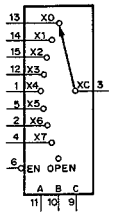
RD	Q11 ------ Q0
1	ALL LOW
0	COUNT

0 ; LOW LEVEL
1 ; HIGH LEVEL

MC14051BF (MOTOROLA) FLAT PACKAGE

C-MOS 8-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –





CONTROL INPUTS				SELECTED CHANNEL
EN	SELECT			
	C	B	A	
0	0	0	0	XO
0	0	0	1	X1
0	0	1	0	X2
0	0	1	1	X3
0	1	0	0	X4
0	1	0	1	X5
0	1	1	0	X6
0	1	1	1	X7
1	X	X	X	OPEN

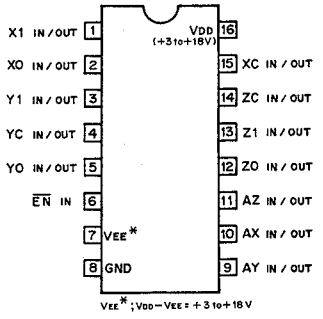
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

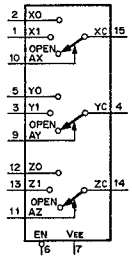
XO to X7; ANALOG INPUTS/OUTPUTS
XC; COMMON INPUT/OUTPUT
A,B,C; CHANNEL SELECT INPUT
EN; ENABLE INPUT

* VEE ; VDD – VEE = +3 to +18V

MC14053BCP (MOTOROLA)
TC4053BP (TOSHIBA)
TC4053BPHB (TOSHIBA)
UPD4053BC (NEC)
XRU4053BF (EXA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
– TOP VIEW –





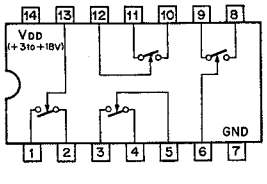
VEE* ; VDD – VEE = +3 to +18 V

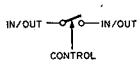
CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

MC14066BCP (MOTOROLA)
UPD4066BC (NEC)

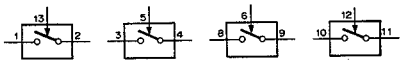
C-MOS QUAD BILATERAL ANALOG SWITCH
– TOP VIEW –





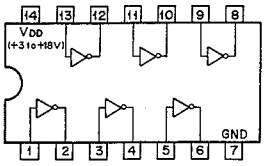
CONTROL	SWITCH
0	OFF
1	ON

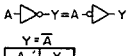
0; LOW LEVEL
1; HIGH LEVEL



MC14069UBCP (MOTOROLA)
TC4069UBP (TOSHIBA)
UPD4069UBC (NEC)

C-MOS INVERTER
– TOP VIEW –





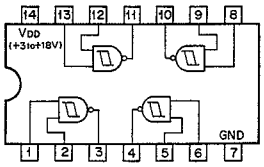
$Y = \overline{A}$

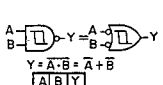
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

MC14093BCP (MOTOROLA)
TC4093BP (TOSHIBA)

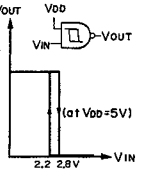
C-MOS 2-INPUT NAND SCHMITT TRIGGER
– TOP VIEW –





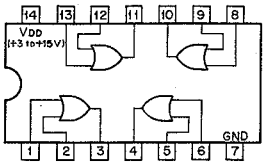
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

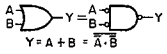
0 ; LOW LEVEL
1 ; HIGH LEVEL



MC14071BCP (MOTOROLA)
TC4071BF (TOSHIBA) FLAT PACKAGE
TC4071BP (TOSHIBA)
UPD4071BC (NEC)

C-MOS 2-INPUT OR GATE
– TOP VIEW –



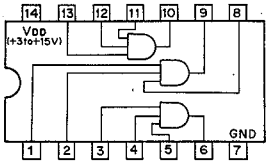


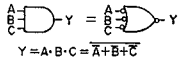
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

MC14073BCP (MOTOROLA)
TC4073BP (TOSHIBA)

C-MOS 3-INPUT POSITIVE AND GATE
– TOP VIEW –



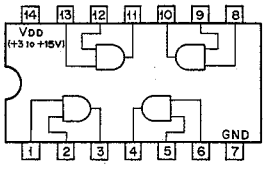


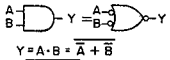
A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC14081BCP (MOTOROLA)
TC4081BP (TOSHIBA)
UPD4081BC (NEC)

C-MOS 2-INPUT AND GATE
– TOP VIEW –



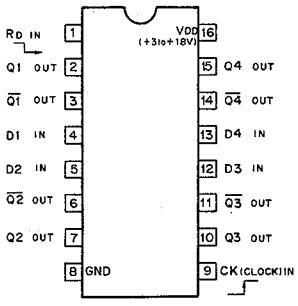


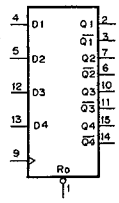
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

MC14175BCP (MOTOROLA)
TC40175BP (TOSHIBA)

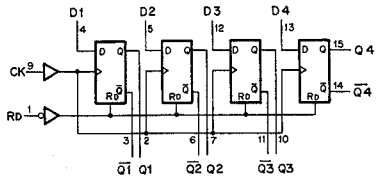
C-MOS D-TYPE FLIP-FLOP
– TOP VIEW –





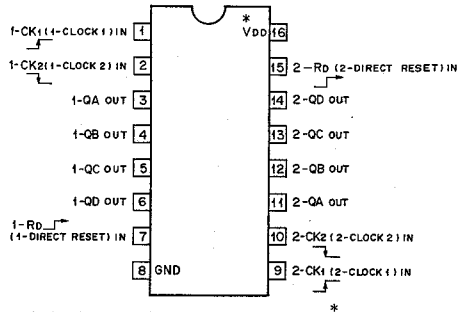
CK	D	RD	Q	$\overline{Q}$
↓	0	1	0	1
↓	1	1	1	0
↓	X	1	Q_0	$\overline{Q}_0$
X	X	0	0	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



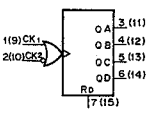
MC14520BCP (MOTOROLA)
TC4520BP (TOSHIBA)
TC4520BPHB (TOSHIBA)

C-MOS DUAL 4-BIT BINARY UP COUNTER
– TOP VIEW –



STATE	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



*

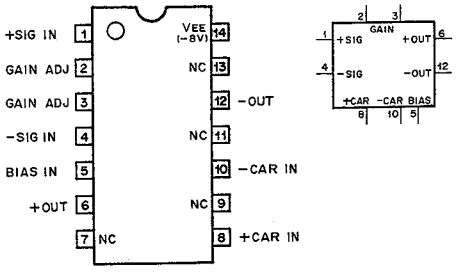
TYPE	VDD
HC4520	+2 to +6V
14520, 4520, 84520	+3 to +18V

CK1	CK2	RD	ACTION
↓	1	0	INCREMENT COUNTER
0	↓	0	INCREMENT COUNTER
↓	X	0	NO CHANGE
X	↓	0	NO CHANGE
↓	0	0	NO CHANGE
1	↓	0	NO CHANGE
X	X	1	QA THRU QD = 0

MC1496P (MOTOROLA)

BALANCED MODULATOR/DEMODULATOR

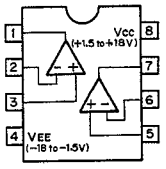
– TOP VIEW –



NJM082M (JRC) FLAT PACKAGE
TL082ACP (TI)
TL082CP (TI)
TL082CPS (TI) FLAT PACKAGE
UPC4082C (NEC)

OPERATIONAL AMPLIFIER
(JFET INPUT)

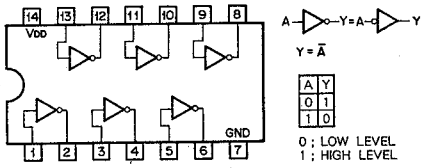
– TOP VIEW –



MC74HC04AN (MOTOROLA)
SN74HC04AN (TI)
TC74HC04AP (TOSHIBA)
TC74HCT04AF (TOSHIBA) FLAT PACKAGE

C-MOS HEX INVERTERS

– TOP VIEW –



A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

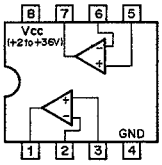
NOTE :

TYPE	VDD
74HCT04 TYPE	+5V
74VHC TC74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

NJM2903D (JRC)

DUAL VOLTAGE COMPARATORS

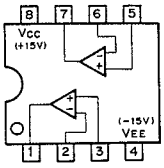
– TOP VIEW –



NJM4558D (JRC)
UPC4558C (NEC)

DUAL OPERATIONAL AMPLIFIER

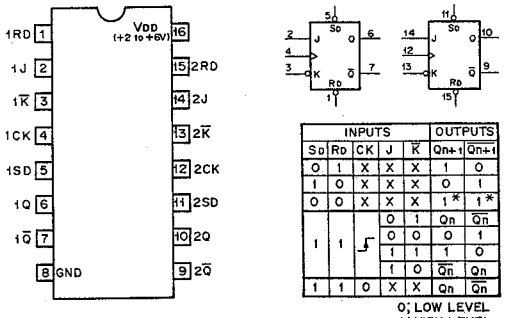
– TOP VIEW –



MC74HC109N (MOTOROLA)
TC74HC109P (TOSHIBA)

C-MOS J-K FLIP-FLOP WITH DIRECT SET/RESET

– TOP VIEW –



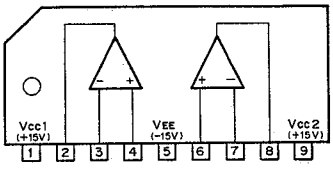
INPUTS					OUTPUTS	
$\overline{S_D}$	$\overline{R_D}$	CK	J	K̄	Q_{n+1}	$\overline{Q_{n+1}}$
0	1	X	X	X	1	0
1	0	X	X	X	0	1
0	0	X	X	X	1 *	1 *
1	1	↓	0	1	Q_n	$\overline{Q_n}$
			0	0	0	1
			1	1	1	0
			1	0	$\overline{Q_n}$	Q_n
1	1	0	X	X	Q_n	$\overline{Q_n}$

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
*; NONSTABLE

NJM4558S (JRC)

HIGH PERFORMANCE DUAL OPERATIONAL AMPLIFIER

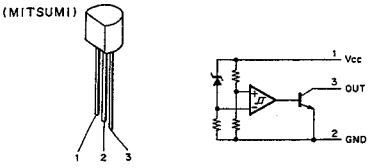
– SIDE VIEW –



PST529C (MITSUMI) Vs = 4.5V

VOLTAGE DETECTOR,SYSTEM RESET

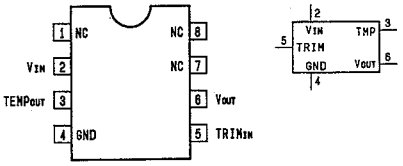
(MITSUMI)



REF-02EZ (PMI)

REFERENCE/TEMPERATURE TRANSDUCER

– TOP VIEW –

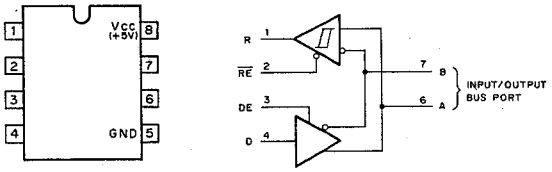


VIN ;INPUT VOLTAGE(+7Vto+40V)
TEMPOUT ;TEMPERATURE TRANSDUCER VOLTAGE OUTPUT(2.1mV/°C)
TRIMIN ;OUTPUT SIGNAL TRIMMING
VOUT ;OUTPUT VOLTAGE (+5V)

SN75176BP (TI)

TTL-DIFFERENTIAL BUS TRANSCEIVER

– TOP VIEW –



FUNCTION TABLE

– DRIVER –

INPUT	ENABLE	OUTPUT	
D	DE	A	B
1	1	1	0
0	1	0	1
X	0	HI-Z	HI-Z

– RECEIVER –

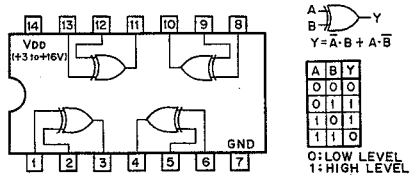
DIFFERENTIAL INPUTS	ENABLE	OUTPUT
A-B	$\overline{RE}$	R
$V_{ID} > 0.2V$	0	1
$-0.2V < V_{ID} < 0.2V$	0	?
$V_{ID} < -0.2V$	0	0
X	1	HI-Z

1 ; HIGH LEVEL
0 ; LOW LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
? ; INDETERMINATE

TC4030BP (TOSHIBA)
TC4030BPHB (TOSHIBA)

C-MOS EXCLUSIVE OR GATE

– TOP VIEW –



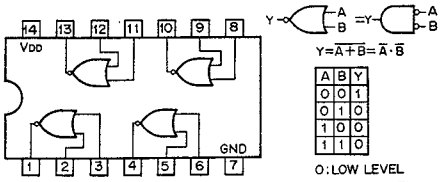
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

TC74HCT02AF (TOSHIBA) FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATES

– TOP VIEW –



A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

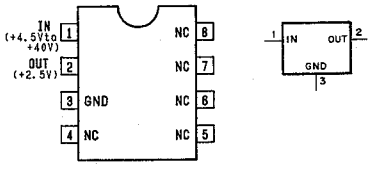
NOTE :

TYPE	VDD
TC74AC02F	+2 to +5.5V
74ACT02SJ TC74ACT02F	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

UPC1060C (NEC)

VOLTAGE REFERENCE

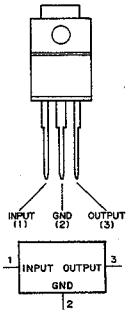
– TOP VIEW –



UPC2412HF (NEC) ; +12V (1A)

POSITIVE VOLTAGE REGULATOR

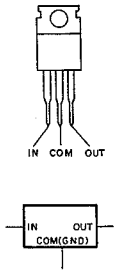
– FRONT VIEW –



UPC78M12H (NEC) +12V

POSITIVE VOLTAGE REGULATOR (0.5A)

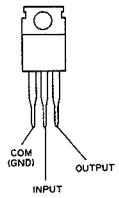
– SIDE VIEW –

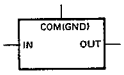


UPC7912H (NEC) – 12V

NEGATIVE VOLTAGE REGULATOR (1A)

– SIDE VIEW –

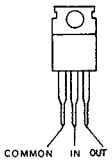


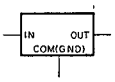


UPC79M12H (NEC) – 12V

NEGATIVE VOLTAGE REGULATOR (0.5A)

– SIDE VIEW –

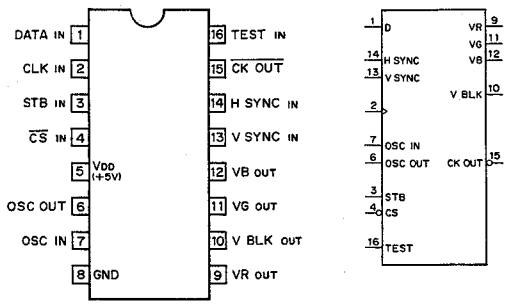




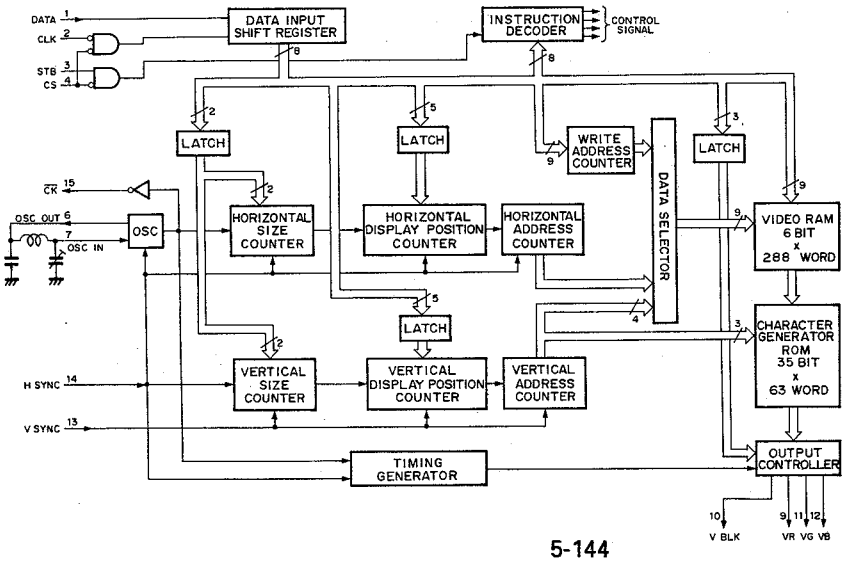
UPD6142G-101 (NEC) FLAT PACKAGE

C-MOS 8-BIT SERIALL INPUT CHARACTER DISPLAY

– TOP VIEW –

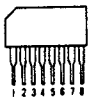


D; DATA INPUT
CK OUT; EQUAL TO OUTPUT OF OSC OUT
CLK; CLOCK INPUT
CS; CHIP SELECT INPUT
H SYNC; H SYNC INPUT
OSC IN, OUT; EXTERNAL TERMINAL FOR OSC
STB; STROBE INPUT
TEST; TEST CLOCK INPUT
VB; BLUE CHARACTER DATA OUTPUT
V BLK; V BLANKING OUTPUT
VG; GREEN CHARACTER DATA OUTPUT
VR; RED CHARACTER DATA OUTPUT
V SYNC; V SYNC INPUT

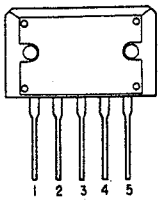


CP2005S

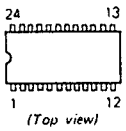
LA7016



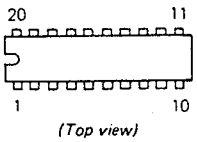
STRB124



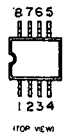
TA7193P



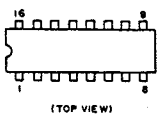
TC74HC299AF



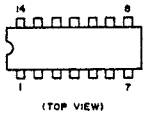
TL082M



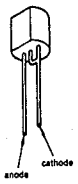
TL8608AP



μPC1394C



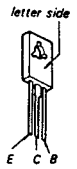
μPC574J



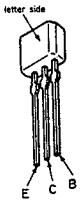
2SA1048
2SA1115
2SC2668
2SC403SP
DTA124ES
DTA144ES
DTC124ES
DTC143TS
DTC144ES
XDA124ES
XDA144ES
XDC124ES
XDC144ES

2SA1091
2SA733
2SA844
2SC2551
2SC2878
2SC3068

2SA1142
2SA1406
2SA1407-0
2SC2688
2SC2752
2SC3600
2SD669A



2SA1175
2SC2785



2SA1226
2SC1623
2SC2351
2SC3624A
DTA144EK
DTC144EK

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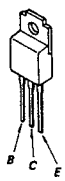
2SA1306B-0



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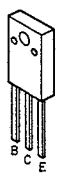

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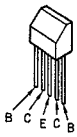

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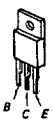

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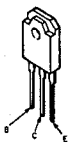

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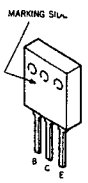

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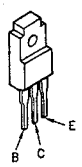

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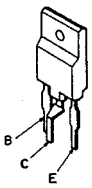

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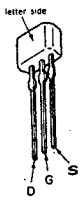
2SK523

2SK514-F
2SK514-H



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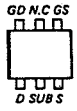

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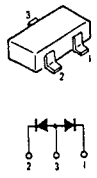

1S2837
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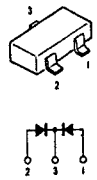

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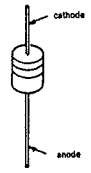
RH1
RH1A
RU1A
RU1C
WG713A



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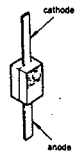

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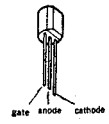
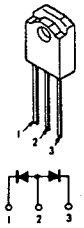


CTU-38R



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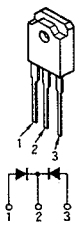

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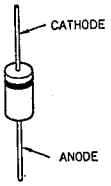

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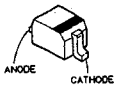

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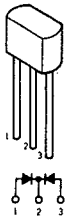
MC921



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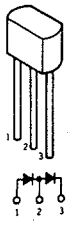

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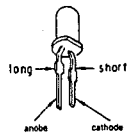
TLY124



SECTION 6
EXPLODED VIEWS

【使用上の注意】

⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用して下さい。

この資料に掲載されている部品の価格は，ﾜｰﾙﾄﾞ･ﾘﾍﾟｱ･ﾊﾟｰﾂｾﾝﾀ発行の標準価格ﾊﾝﾄﾞﾌﾞｯｸの最新版を参照してください。

- 組立部品の構成部品は備考欄に図面番号で示します。
- ＊印の部品は常備在庫しておりません。
- 分解図中の機構部品で，図面番号のない部品は供給しません。
- -XX, -Xは標準部品のため，セットに付いている部品と異なる場合があります。

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

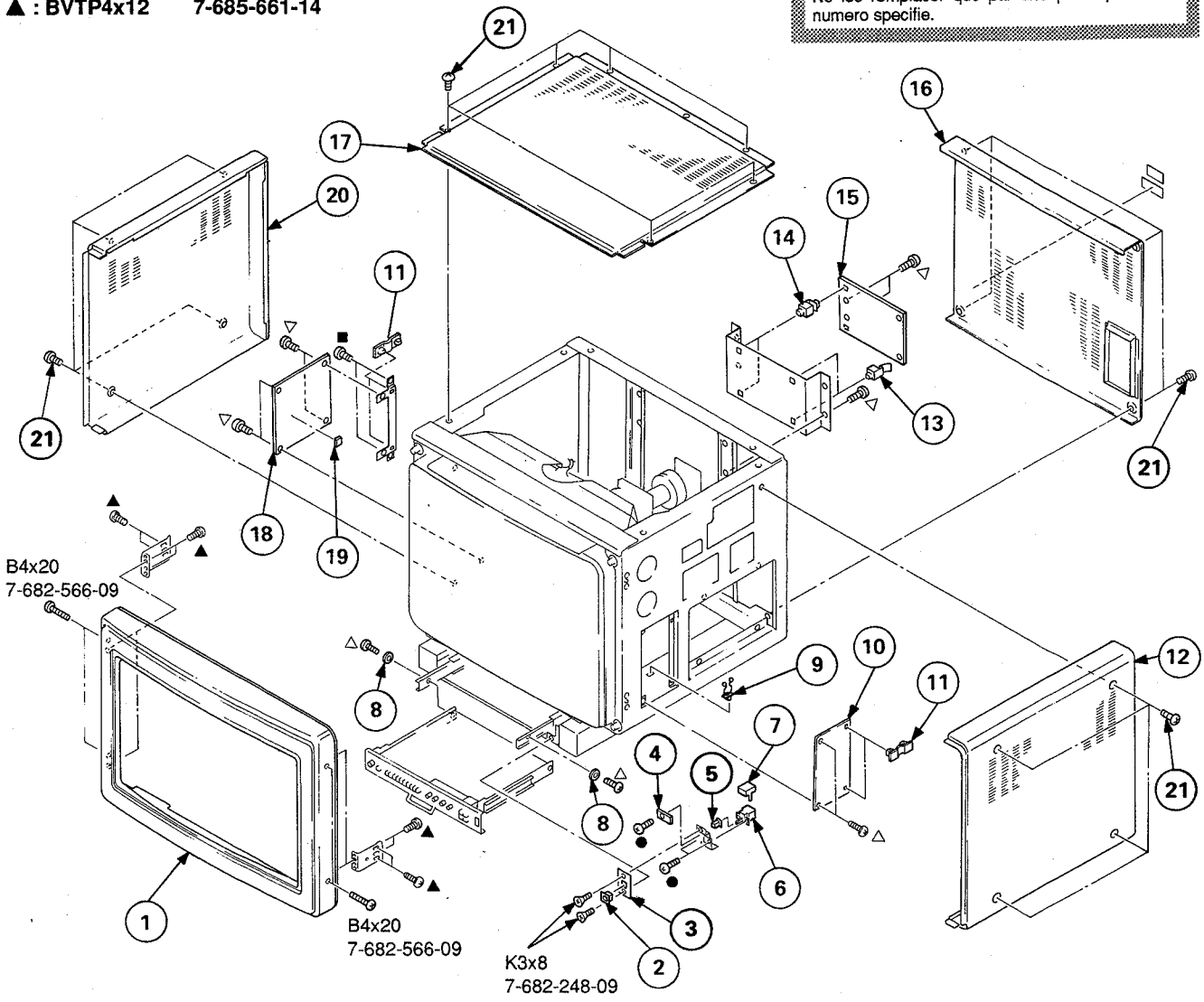
6-1. BEZEL AND COVERS

■ : B4x8 7-682-561-04
▽ : BVTT3x8 7-682-548-04
△ : B4x6 7-682-560-04
● : BVTT3x6 7-682-547-09
▲ : BVTP4x12 7-685-661-14

⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用して下さい。

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

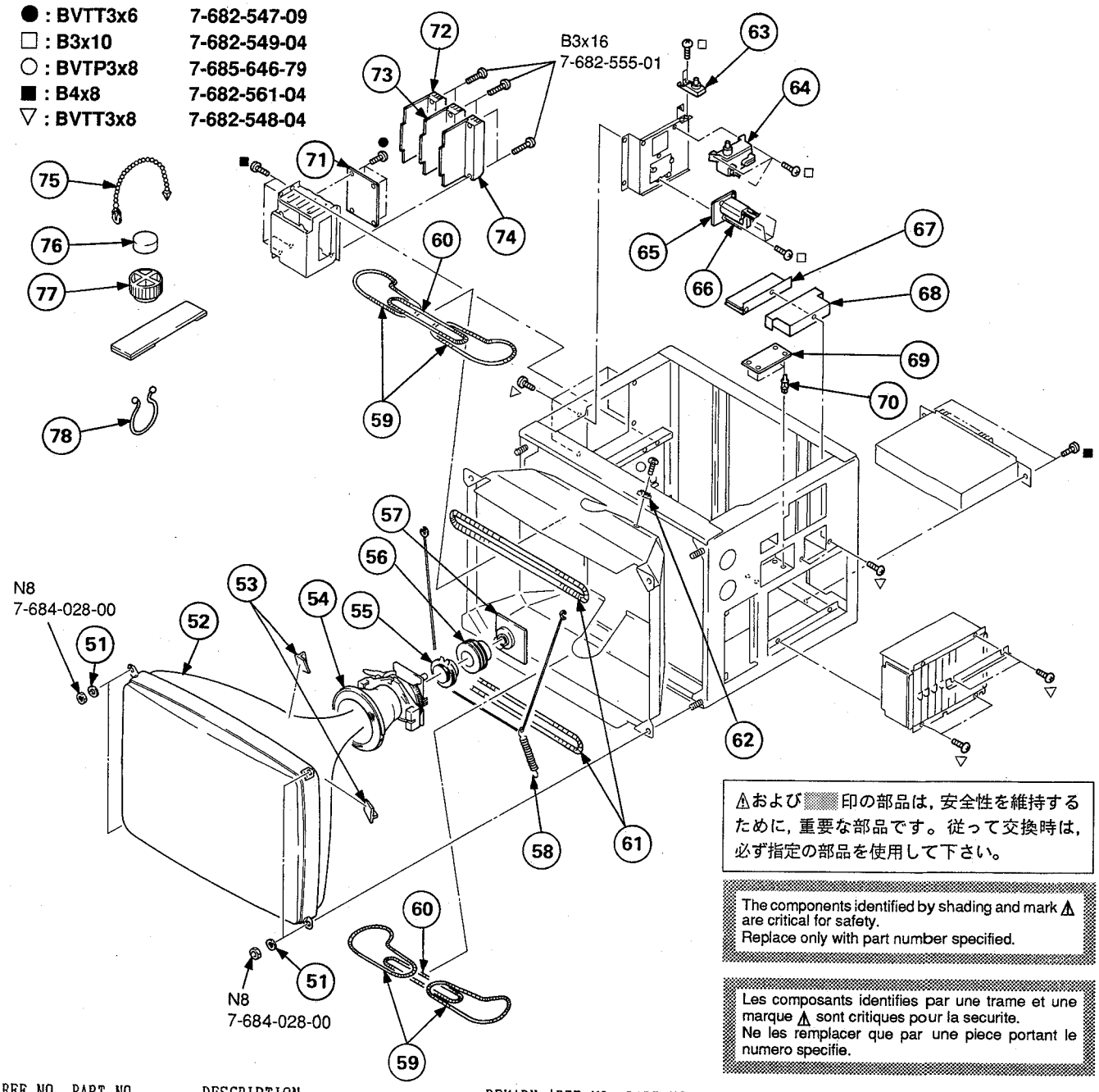
Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	X-4378-936-4	BEZEL ASSY	
2	4-379-423-11	ESCUTCHEON (A)	
3	4-042-169-01	PANEL, POWER SWITCH	
4	*A-1373-426-A	Y BOARD, COMPLETE	
5	4-374-839-21	BUTTON (A)	
6	⚠1-571-877-12	SWITCH, PUSH (AC POWER)	
7	*4-393-095-01	COVER, POWER SWITCH	
8	*4-379-499-01	SPACER	
9	4-341-427-01	PURSE LOCK (TYPE S) (DIA. 15)	
10	*A-1394-473-A	R1 BOARD, COMPLETE	
11	*4-313-732-00	CLIP, HINGE, CIRCUIT BOARD	
12	*4-393-001-01	CABINET (R)	
13	*3-703-141-00	HOLDER, PCB	
14	*4-353-620-02	HINGE, PC BOARD	
15	*A-1135-464-A	BK BOARD, COMPLETE	
16	4-393-004-11	COVER, REAR	
17	*4-393-003-01	CABINET (T)	
18	*A-1345-981-A	DB BOARD, COMPLETE	
19	9-911-841-XX	CUSHION	
20	*4-393-002-01	CABINET (L)	
21	4-847-802-00	SCREW (OS), CASE, CLAW 4x8	

6-2. PICTURE TUBE

● : BVTT3x6 7-682-547-09
□ : B3x10 7-682-549-04
○ : BVTP3x8 7-685-646-79
■ : B4x8 7-682-561-04
▽ : BVTT3x8 7-682-548-04



⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用して下さい。

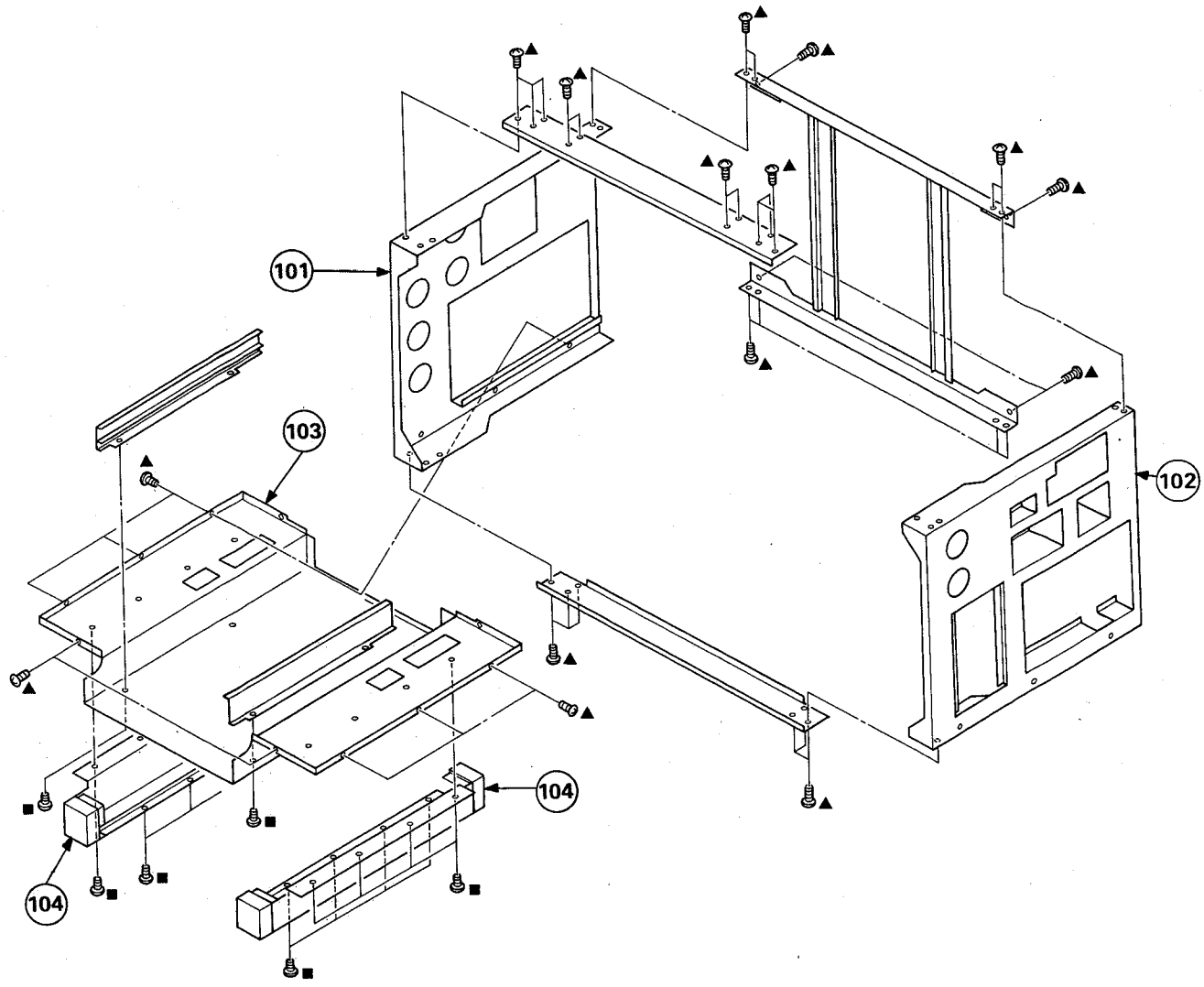
The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK
51	4-390-485-01	WASHER, CRT	
52	⚠ 8-738-451-70	ITC ASSY (BVM-3011 ONLY)	
	⚠ 8-738-456-75	ITC ASSY (BVM-2811 ONLY)	
	⚠ 8-738-451-75	ITC ASSY (BVM-3011P ONLY)	
53	3-703-003-00	SPACER, DY	
54	⚠ 1-451-287-21	DEFLECTION YOKE (Y14FAA)	
55	⚠ 1-452-261-22	CRT NECK ASSY (362)	
56	⚠ 1-452-117-31	CRT NECK ASSY	
57	*A-1331-286-A	C BOARD, COMPLETE	
58	4-369-318-00	SPRING, TENSION	
59	1-426-293-11	COIL, LANDING CORRECTION (B)	
60	1-426-292-11	COIL, LANDING CORRECTION (A)	
61	⚠ 1-426-294-11	COIL, DEMAGNETIZATION	
62	*4-309-624-00	TERMINAL, EARTH	
63	⚠ 1-237-165-13	RESISTOR ASSY, HIGH-VOLTAGE	
64	⚠ 1-453-103-51	HIGH-VOLTAGE BLOCK (HB-203D)	
65	*1-617-891-21	PB BOARD	
66	⚠ 1-439-382-21	TRANSFORMER ASSY, FLYBACK (NX-2011)	
67	⚠ 1-413-682-11	REGULATOR, SWITCHING (LW30-01)	
68	*4-033-173-01	CASE, INSULATING	
69	*A-1311-341-A	GE BOARD, COMPLETE	
70	*4-309-357-21	SUPPORT, PC	
71	*1-647-911-11	TA BOARD	
72	*A-1346-029-A	EA BOARD, COMPLETE	
73	*A-1345-731-A	EB BOARD, COMPLETE	
74	*A-1394-456-A	PA BOARD, COMPLETE	
75	4-308-870-00	CLIP, LEAD WIRE	
76	1-452-032-00	MAGNET, DISK; 10MM φ	
77	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM φ	
78	3-701-417-00	PURSE LOCK (11 DIA.)	

6-3. CHASSIS

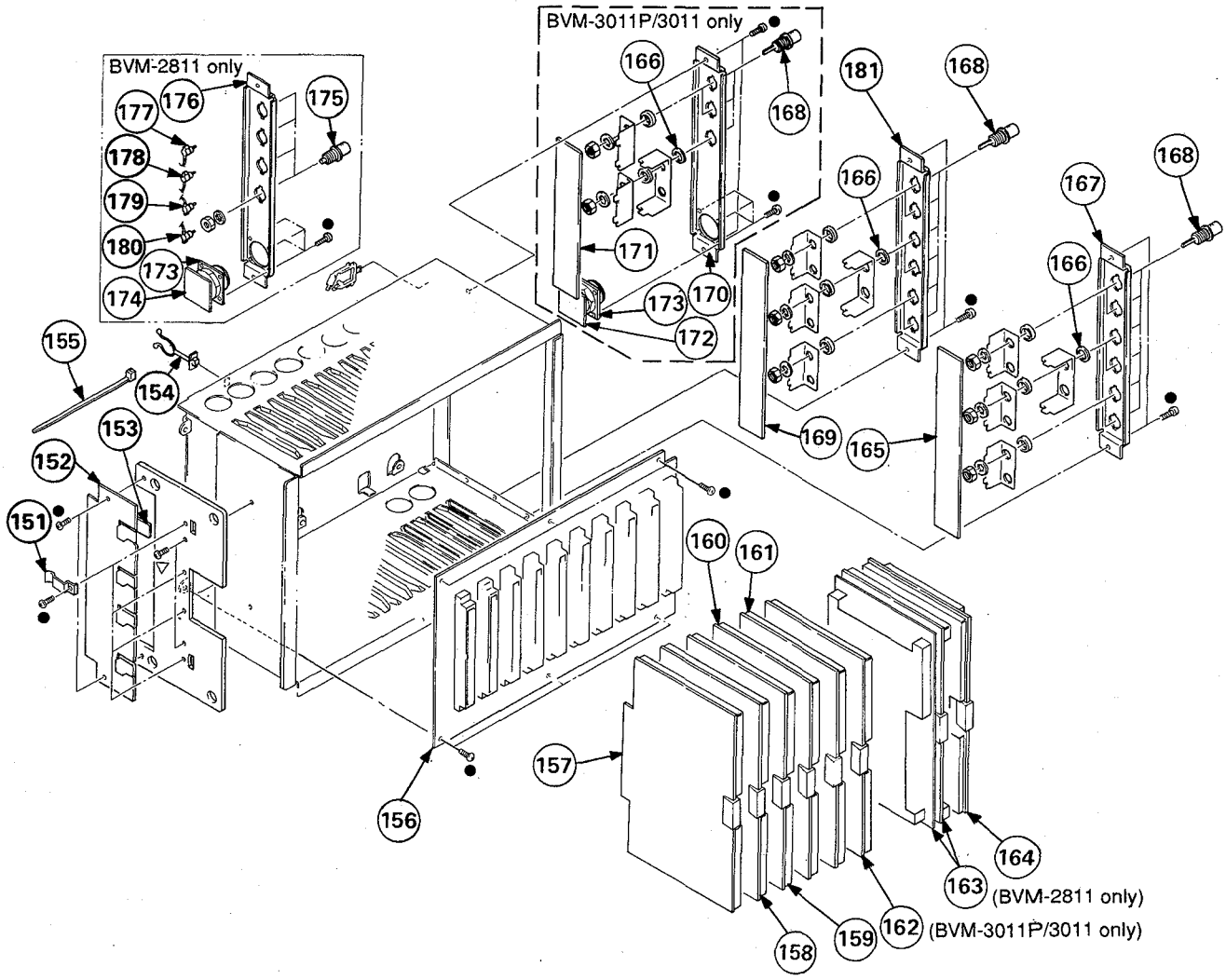
▲ : BVTP4x12 7-685-661-14
■ : B4x8 7-682-561-04



REF.NO.	PART NO.	DESCRIPTION	REMARK
101	4-042-177-01	CHASSIS (L)	
102	4-042-178-01	CHASSIS (R)	
103	X-4031-427-1	CHASSIS ASSY, BOTTOM	
104	X-4378-951-3	LEG ASSY	

6-4. SIGNAL BLOCK

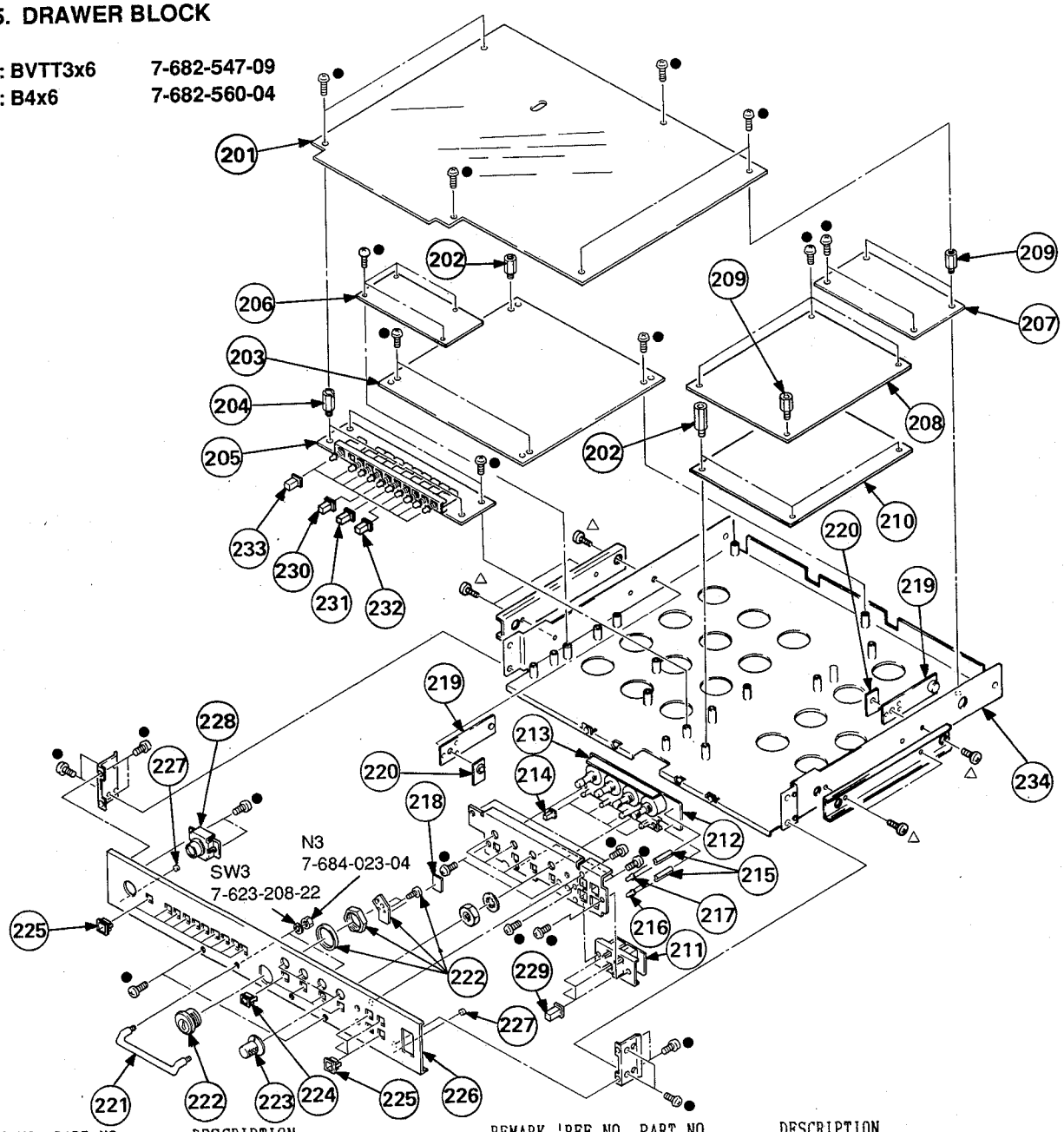
● : BVTT3x6 7-682-547-09
▽ : BVTT3x8 7-682-548-04



REF.NO.	PART NO.	DESCRIPTION	REMARK
151	*4-363-404-00	HOLDER, IC	
152	*1-617-885-11	GC BOARD	
153	4-370-970-01	SPACER, TR	
154	9-910-999-33	PURSE LOCK (DIA.15)	
155	*3-337-402-01	BAND, BINDING	
156	*A-1390-369-A	TB BOARD, COMPLETE	
157	*A-1135-361-A	BJ BOARD, COMPLETE	
158	*A-1135-757-A	BI BOARD, COMPLETE	
159	*A-1135-359-A	BH BOARD, COMPLETE	
160	*A-1135-537-A	BG BOARD, COMPLETE	
161	*A-1135-357-A	BC BOARD, COMPLETE (BVM-2811/3011 ONLY)	
	*A-1135-391-A	BD BOARD, COMPLETE (BVM-3011P ONLY)	
162	*A-1135-606-B	BT BOARD, COMPLETE (BVM-2811/3011 ONLY)	
163	*A-1135-667-A	BV BOARD, COMPLETE (BVM-2811 ONLY)	
164	*A-1135-355-A	BA BOARD, COMPLETE(BVM-3011/3011P ONLY)	
	*A-1135-662-A	BA3 BOARD, COMPLETE (BVM-2811 ONLY)	
165	*1-617-895-11	QA BOARD	
166	*4-379-404-01	INSULATOR, BNC	
167	*4-379-439-01	PANEL (A), CONNECTOR	
168	1-565-791-11	CONNECTOR, BNC 1P	
169	*1-618-786-11	QB BOARD	
170	*4-391-220-01	PANEL (C), CONNECTOR (BVM-3011/3011P ONLY)	
171	*1-627-678-11	W BOARD (BVM-3011/3011P ONLY)	
172	*1-627-677-12	V BOARD (BVM-3011/3011P ONLY)	
173	1-563-265-11	CONNECTOR, MULTIPLE 10P	
174	*1-637-136-11	V2 BOARD (BVM-2811 ONLY)	
175	1-569-711-11	CONNECTOR, BNC (BVM-2811 ONLY)	
176	4-030-188-11	PANEL (DIGITAL), CONNECTOR (BVM-2811 ONLY)	
177	*1-590-367-41	CABLE, MINIATURE PIN (BLACK) (BVM-2811 ONLY)	
178	*1-590-367-11	CABLE, MINIATURE PIN (RED) (BVM-2811 ONLY)	
179	*1-590-367-21	CABLE, MINIATURE PIN (BLUE) (BVM-2811 ONLY)	
180	*1-590-367-31	CABLE, MINIATURE PIN (GREY) (BVM-2811 ONLY)	
181	*4-379-439-01	PANEL (A), CONNECTOR	

6-5. DRAWER BLOCK

● : BVTT3x6 7-682-547-09
△ : B4x6 7-682-560-04



REF.NO.	PART NO.	DESCRIPTION	REMARK
201	4-042-176-01	COVER, PC BOARD	
202	*2-264-136-00	SUPPORT, SWITCH, PUSH BUTTON	
203	*A-1346-152-A	DA BOARD, COMPLETE	
204	3-897-313-01	BOSS (17.2), RELAY	
205	*1-617-890-11	HA BOARD	
206	*A-1390-370-A	R2 BOARD, COMPLETE	
207	*A-1341-685-A	DC BOARD, COMPLETE	
208	*A-1371-895-A	HY BOARD, COMPLETE	
209	*4-040-721-01	BOSS	
210	A-1375-121-A	HZ BOARD, COMPLETE	
211	*1-647-258-11	HX BOARD	
212	*1-647-257-11	HW BOARD	
213	*1-627-682-11	HH BOARD	
214	4-379-422-11	BUTTON (B)	
215	*4-026-910-00	HOLDER, LED	
216	8-719-812-42	DIODE TLY124	
217	8-719-812-41	DIODE TLR124	
218	4-337-209-11	PROTECTOR, SCRATCH	
219	*X-4379-407-1	STOPPER ASSY	
220	*4-386-844-01	NUT, PLATE	
221	4-386-802-01	HANDLE, DRAWER	
222	4-378-917-01	LOCK, CYLINDER	
223	X-3673-635-0	KNOB (1) ASSY, CONTROL	
224	4-379-424-11	ESCUTCHEON (B)	
225	4-379-423-11	ESCUTCHEON (A)	
226	4-386-822-21	PANEL, CONTROL	
227	4-911-672-01	FELT, COVER	
228	1-941-422-15	CONNECTOR ASSY (ROUND TYPE) 12P	
229	4-039-982-01	BUTTON (U)	
230	4-374-839-31	BUTTON (A) (R)	
231	4-374-839-41	BUTTON (A) (G)	
232	4-374-839-51	BUTTON (A) (B)	
233	4-374-839-21	BUTTON (A)	
234	4-042-181-01	CHASSIS, DRAWER	

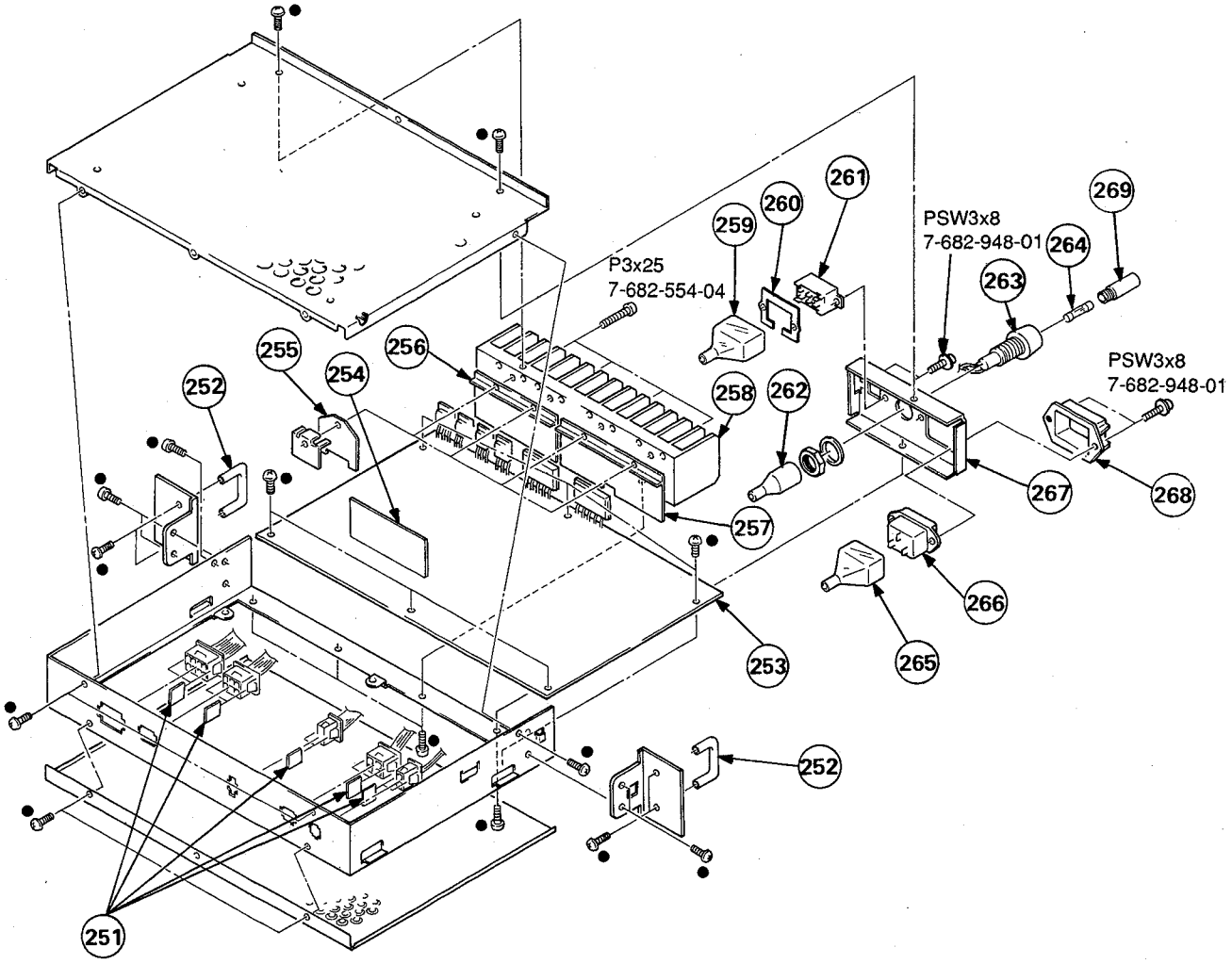
6-6. POWER BLOCK

● : BVTT3x6 7-682-547-09

⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用して下さい。

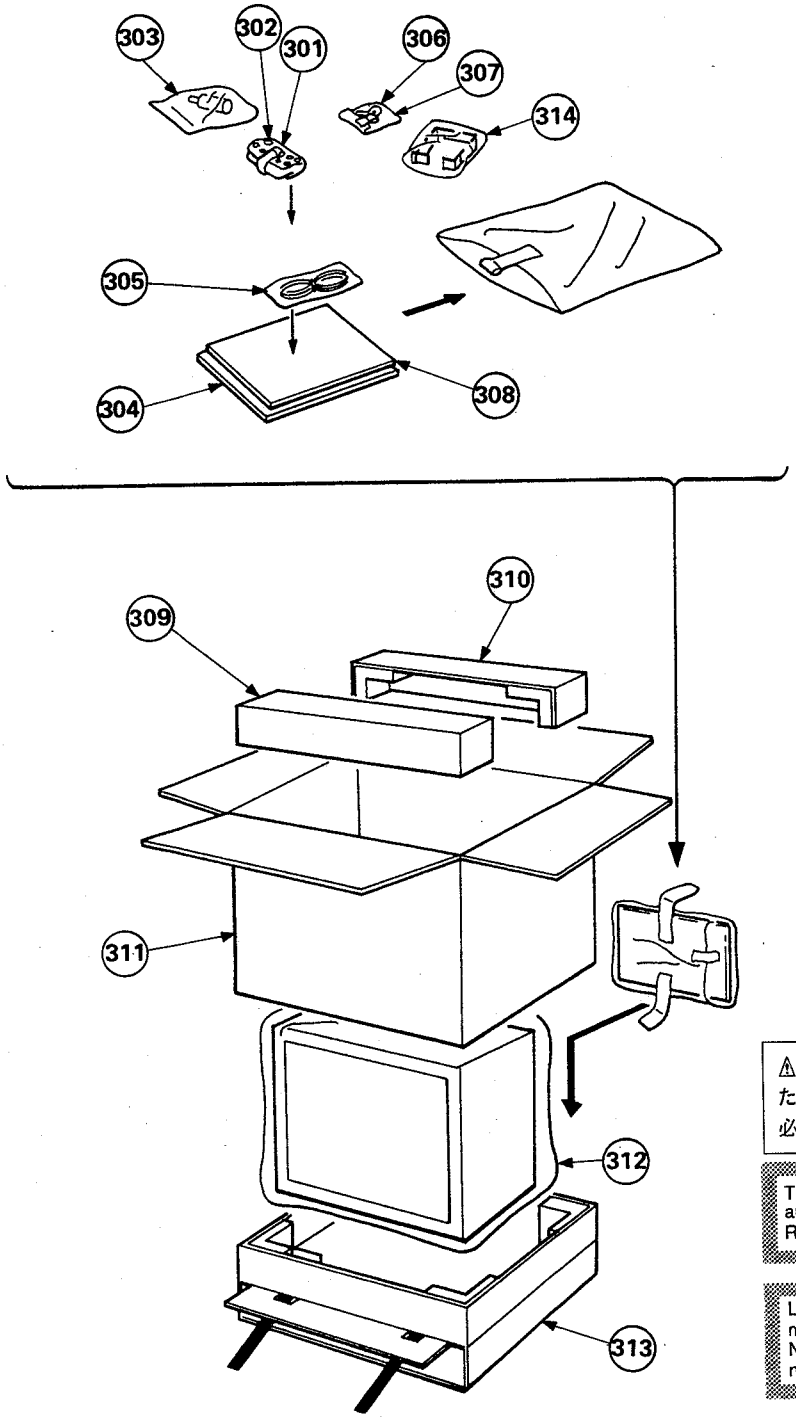
The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.



REF.NO.	PART NO.	DESCRIPTION	REMARK
251	3-675-469-00	SPACER, SOLENOID	
252	*4-379-421-01	HANDLE, DRAWER	
253	*A-1316-165-A	GA BOARD, COMPLETE	254 (BVM-3011P ONLY)
	*A-1316-167-A	GA BOARD, COMPLETE	254 (BVM-2811/3011 ONLY)
254	*1-627-679-11	GB BOARD	
255	*4-379-408-01	INSULATOR (G3)	
256	4-379-410-01	SPACER (G2), POLISHING	
257	4-379-403-01	SPACER (G1), POLISHING	
258	*4-347-706-00	HEAT SINK (TR)	
259	*4-371-879-02	COVER, AC SELECT	
260	*4-379-409-01	NUT, PLATE	
261	⚠1-570-173-22	SELECTOR, POWER VOLTAGE	
262	*4-393-031-01	COVER, FUSE HOLDER	
263	1-533-167-21	HOLDER, FUSE	
264	⚠1-532-203-11	FUSE, TIME-LAG (2.0A/250V) (BVM-3011P ONLY)	
	⚠1-532-746-11	FUSE, GLASS TUBE (4.0A/125V) (BVM-2811/3011 ONLY)	
265	*4-601-466-11	COVER, 3P INLET	
266	⚠1-580-375-11	INLET 3P	
267	*4-379-430-01	PANEL, POWER	
268	2-990-241-02	HOLDER (A), PLUG	
269	1-533-168-21	HOLDER, FUSE	

6-7. PACKING



⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用して下さい。

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION	REMARK
301	⚠1-532-203-11	FUSE, TIME-LAG (2.0A/250V) (BVM-3011P ONLY)	
302	⚠1-532-746-11	FUSE, GLASS TUBE (4.0A/125V) (BVM-2811/3011 ONLY)	
303	1-560-776-00	SOCKET, CONNECTOR 10P	
304	*A-1394-088-A	Z BOARD, COMPLETE	
305	⚠1-551-812-11	CORD, POWER (7.0A/125V) (BVM-2811 ONLY)	
	⚠1-557-161-11	CORD, POWER (7.0A/120V) (BVM-3011 ONLY)	
	⚠1-590-151-11	CORD SET, POWER (10.0A/250V) (BVM-3011P ONLY)	
306	4-378-901-01	KEY	
307	7-700-731-03	DRIVER, VR ADJUSTMENT	
308	4-042-172-01	MANUAL, OPERATION & MAINTENANCE	
309	*4-383-359-01	CUSHION (UPPER FRONT)	
310	*4-383-360-01	CUSHION (UPPER REAR)	
311	*4-041-768-01	INDIVIDUAL CARTON (BVM-3011 ONLY)	
	*4-041-769-01	INDIVIDUAL CARTON (BVM-3011P ONLY)	
	*4-041-770-01	INDIVIDUAL CARTON (BVM-2811 ONLY)	
312	*4-359-683-00	BAG, PROTECTION	
313	*X-4378-950-2	TABLE ASSY, BOTTOM	
314	2-990-242-01	HOLDER (B), PLUG (BVM-2811/3011 ONLY)	
	3-170-078-01	HOLDER (B), PLUG (BVM-3011P ONLY)	

SECTION 7
ELECTRICAL PARTS LIST

[使用上の注意].

⚠ および ▒▒ 印の部品は,安全性を維持するために,重要な部品です。従って交換時は,必ず指定の部品を使用して下さい。

お願い

図面番号で部品を指定するときは基板名又はブロックを併せて指定して下さい。

この資料に掲載されている部品の価格は,ﾜｰﾙﾄﾞ･ﾘﾍﾟｱ･ﾊﾟｰﾂｾﾝﾀ発行の標準価格ﾊﾝﾄﾞﾌﾞｯｸの最新版を参照してください。

- ⧓ 印の部品の定数は,X線量規制の規格を満足させるため,製造時セット毎に確認し決定したものです。
  万一この部品を交換する場合は,セットに付いている部品と同一のものをご使用下さい。
- コンデンサの単位でMFはμFを,PFはμμを示します。
- 抵抗の単位Ωは省略してあります。
  金属被膜:金属被膜抵抗。
  酸金被膜:酸化金属被膜抵抗。
  備考欄のFは不燃性抵抗を示します。
- インダクタの単位で,MMFはmHを,UHはμHを示します
- ＊印の部品は常備在庫しておりません。
  受注して供給できるまで,日数を要します。
- -XX,-Xは標準部品のため,セットに付いている部品と異なる場合があります。
- 半導体の名称でUA...,UPA...,UPB...,UPC...,UPD...等はそれぞれμA...,μPA...,μPB...,μPC...,μPD...を示します。
- ここに記載されている部品は,補修用部品であるため,回路図及びセットについている部品と異なる場合があります。

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F: nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF: μF, PF: μμF

COILS
- MMH: mH, UH: μH

- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.
  Should replacement be required, replace only with the value originally used.

BA

REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1135-355-A	BA BOARD, COMPLETE(BVM-3011/3011P ONLY) **********	
	*4-353-708-00	HOOK, FINGER	
	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		<CONNECTOR>	
BA1	*1-566-054-11	PIN, CONNECTOR 2P	
BA2	*1-566-054-11	PIN, CONNECTOR 2P	
BA3	*1-566-054-11	PIN, CONNECTOR 2P	
BA4	*1-566-054-11	PIN, CONNECTOR 2P	
BA5	*1-566-054-11	PIN, CONNECTOR 2P	
BA6	*1-566-054-11	PIN, CONNECTOR 2P	
		<COMPOSITION CIRCUIT BLOCK>	
C1	1-233-030-11	COMPOSITION CIRCUIT BLOCK	
C2	1-233-030-11	COMPOSITION CIRCUIT BLOCK	
C3	1-233-030-11	COMPOSITION CIRCUIT BLOCK	
C4	1-233-030-11	COMPOSITION CIRCUIT BLOCK	
C5	1-233-030-11	COMPOSITION CIRCUIT BLOCK	
C6	1-233-030-11	COMPOSITION CIRCUIT BLOCK	
C7	1-233-030-11	COMPOSITION CIRCUIT BLOCK	
		<CAPACITOR>	
C1	1-124-910-11	ELECT 47MF 20% 16V	
C2	1-124-910-11	ELECT 47MF 20% 16V	
C3	1-124-910-11	ELECT 47MF 20% 16V	
C4	1-126-964-11	ELECT 10MF 20% 16V	
C5	1-124-910-11	ELECT 47MF 20% 16V	
C6	1-124-910-11	ELECT 47MF 20% 16V	
C7	1-124-910-11	ELECT 47MF 20% 16V	
C8	1-124-910-11	ELECT 47MF 20% 16V	
C9	1-101-004-00	CERAMIC 0.01MF 50V	
C10	1-101-004-00	CERAMIC 0.01MF 50V	
C11	1-126-103-11	ELECT 470MF 20% 16V	
C12	1-126-101-11	ELECT 100MF 20% 16V	
C13	1-126-101-11	ELECT 100MF 20% 16V	
C14	1-126-101-11	ELECT 100MF 20% 16V	
C15	1-126-101-11	ELECT 100MF 20% 16V	
C16	1-126-101-11	ELECT 100MF 20% 16V	
C17	1-126-101-11	ELECT 100MF 20% 16V	
C18	1-126-964-11	ELECT 10MF 20% 16V	
C19	1-126-964-11	ELECT 10MF 20% 16V	
C20	1-101-004-00	CERAMIC 0.01MF 50V	
C21	1-101-006-00	CERAMIC 0.047MF 50V	
C31	1-101-004-00	CERAMIC 0.01MF 50V	
C32	1-126-964-11	ELECT 10MF 20% 16V	
C33	1-126-964-11	ELECT 10MF 20% 16V	
C34	1-126-964-11	ELECT 10MF 20% 16V	
C35	1-126-964-11	ELECT 10MF 20% 16V	
C36	1-126-964-11	ELECT 10MF 20% 16V	
C37	1-126-964-11	ELECT 10MF 20% 16V	
C38	1-126-964-11	ELECT 10MF 20% 16V	
C39	1-101-004-00	CERAMIC 0.01MF 50V	
C51	1-126-103-11	ELECT 470MF 20% 16V	
C52	1-126-101-11	ELECT 100MF 20% 16V	
C53	1-126-101-11	ELECT 100MF 20% 16V	
C54	1-126-101-11	ELECT 100MF 20% 16V	
C55	1-126-101-11	ELECT 100MF 20% 16V	
C56	1-126-101-11	ELECT 100MF 20% 16V	
C57	1-126-101-11	ELECT 100MF 20% 16V	
C71	1-101-004-00	CERAMIC 0.01MF 50V	
C72	1-101-004-00	CERAMIC 0.01MF 50V	
C73	1-101-004-00	CERAMIC 0.01MF 50V	
C74	1-101-004-00	CERAMIC 0.01MF 50V	
C75	1-101-004-00	CERAMIC 0.01MF 50V	
C76	1-101-004-00	CERAMIC 0.01MF 50V	
C77	1-101-004-00	CERAMIC 0.01MF 50V	
C101	1-102-038-00	CERAMIC 0.001MF 500V	
C102	1-126-964-11	ELECT 10MF 20% 16V	
C103	1-102-951-00	CERAMIC 15PF 5% 50V	
C104	1-124-902-00	ELECT 0.47MF 20% 50V	
C201	1-102-038-00	CERAMIC 0.001MF 500V	
C202	1-126-964-11	ELECT 10MF 20% 16V	
C203	1-102-951-00	CERAMIC 15PF 5% 50V	
C204	1-124-902-00	ELECT 0.47MF 20% 50V	
C301	1-102-038-00	CERAMIC 0.001MF 500V	
C302	1-126-964-11	ELECT 10MF 20% 16V	
C303	1-102-965-00	CERAMIC 39PF 5% 50V	
C304	1-124-902-00	ELECT 0.47MF 20% 50V	
C305	1-102-947-00	CERAMIC 10PF 0.5PF 50V	
C306	1-102-942-00	CERAMIC 5PF 1PF 50V	
C401	1-102-038-00	CERAMIC 0.001MF 500V	
C402	1-126-964-11	ELECT 10MF 20% 16V	
C403	1-102-951-00	CERAMIC 15PF 5% 50V	
C404	1-124-902-00	ELECT 0.47MF 20% 50V	
C501	1-102-038-00	CERAMIC 0.001MF 500V	
C502	1-126-964-11	ELECT 10MF 20% 16V	
C503	1-102-951-00	CERAMIC 15PF 5% 50V	
C504	1-124-902-00	ELECT 0.47MF 20% 50V	
C601	1-102-038-00	CERAMIC 0.001MF 500V	
C602	1-126-964-11	ELECT 10MF 20% 16V	
C603	1-102-951-00	CERAMIC 15PF 5% 50V	
C604	1-124-902-00	ELECT 0.47MF 20% 50V	
C701	1-102-976-00	CERAMIC 180PF 5% 50V	
C702	1-102-947-00	CERAMIC 10PF 0.5PF 50V	
C703	1-126-964-11	ELECT 10MF 20% 16V	
C704	1-124-910-11	ELECT 47MF 20% 16V	
C705	1-136-153-00	FILM 0.01MF 5% 50V	

REF.NO.	PART NO.	DESCRIPTION				REMARK
C706	1-124-903-11	ELECT	1MF	20%	50V	
C707	1-123-369-00	ELECT	4.7MF	20%	25V	
C708	1-126-964-11	ELECT	10MF	20%	16V	
C709	1-102-973-00	CERAMIC	100PF	5%	50V	
C710	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C711	1-136-155-00	FILM	0.015MF	5%	50V	
C712	1-130-471-00	MYLAR	0.001MF	5%	50V	
C713	1-124-903-11	ELECT	1MF	20%	50V	
C714	1-102-973-00	CERAMIC	100PF	5%	50V	
C715	1-101-361-00	CERAMIC	150PF	5%	50V	
C716	1-136-153-00	FILM	0.01MF	5%	50V	
C717	1-102-973-00	CERAMIC	100PF	5%	50V	

<TRIMMER>

CV101	1-141-179-12	CAP, VAR, TRIMMER
CV102	1-141-260-00	TRIMAR, CERAMIC
CV201	1-141-179-12	CAP, VAR, TRIMMER
CV202	1-141-260-00	TRIMAR, CERAMIC
CV401	1-141-179-12	CAP, VAR, TRIMMER
CV402	1-141-260-00	TRIMAR, CERAMIC
CV501	1-141-179-12	CAP, VAR, TRIMMER
CV502	1-141-260-00	TRIMAR, CERAMIC
CV601	1-141-179-12	CAP, VAR, TRIMMER
CV602	1-141-260-00	TRIMAR, CERAMIC

<DIODE>

D1	8-719-109-63	DIODE RD3.0ESB2
D2	8-719-000-06	DIODE MC921
D4	8-719-000-04	DIODE MC911
D701	8-719-911-19	DIODE 1SS119
D702	8-719-109-75	DIODE RD4.3ESB2
D703	8-719-911-19	DIODE 1SS119
D704	8-719-911-19	DIODE 1SS119
D705	8-719-911-19	DIODE 1SS119
D706	8-719-911-19	DIODE 1SS119
D707	8-719-911-19	DIODE 1SS119
D708	8-719-911-19	DIODE 1SS119
D709	8-719-911-19	DIODE 1SS119
D710	8-719-911-19	DIODE 1SS119

<IC>

IC1	8-759-208-94	IC CX-894
IC2	8-759-208-94	IC CX-894
IC3	8-759-140-53	IC UPD4053BC

<TRANSISTOR>

Q1	8-729-900-89	TRANSISTOR DTC144ES
Q2	8-729-384-48	TRANSISTOR 2SA844-E
Q3	8-729-900-89	TRANSISTOR DTC144ES
Q4	8-729-900-89	TRANSISTOR DTC144ES
Q5	8-729-900-89	TRANSISTOR DTC144ES
Q6	8-729-900-65	TRANSISTOR DTA144ES
Q101	8-729-266-82	TRANSISTOR 2SC2668-O
Q102	8-729-266-82	TRANSISTOR 2SC2668-O
Q103	8-729-266-82	TRANSISTOR 2SC2668-O
Q104	8-729-384-48	TRANSISTOR 2SA844-E
Q105	8-729-266-82	TRANSISTOR 2SC2668-O
Q201	8-729-266-82	TRANSISTOR 2SC2668-O
Q202	8-729-266-82	TRANSISTOR 2SC2668-O
Q203	8-729-266-82	TRANSISTOR 2SC2668-O
Q204	8-729-384-48	TRANSISTOR 2SA844-E
Q205	8-729-266-82	TRANSISTOR 2SC2668-O
Q301	8-729-266-82	TRANSISTOR 2SC2668-O
Q302	8-729-266-82	TRANSISTOR 2SC2668-O
Q303	8-729-266-82	TRANSISTOR 2SC2668-O
Q304	8-729-384-48	TRANSISTOR 2SA844-E
Q305	8-729-266-82	TRANSISTOR 2SC2668-O
Q401	8-729-266-82	TRANSISTOR 2SC2668-O
Q402	8-729-266-82	TRANSISTOR 2SC2668-O
Q403	8-729-266-82	TRANSISTOR 2SC2668-O
Q404	8-729-384-48	TRANSISTOR 2SA844-E
Q405	8-729-266-82	TRANSISTOR 2SC2668-O
Q501	8-729-266-82	TRANSISTOR 2SC2668-O
Q502	8-729-266-82	TRANSISTOR 2SC2668-O
Q503	8-729-266-82	TRANSISTOR 2SC2668-O
Q504	8-729-384-48	TRANSISTOR 2SA844-E
Q505	8-729-266-82	TRANSISTOR 2SC2668-O
Q601	8-729-266-82	TRANSISTOR 2SC2668-O
Q602	8-729-266-82	TRANSISTOR 2SC2668-O
Q603	8-729-266-82	TRANSISTOR 2SC2668-O
Q604	8-729-384-48	TRANSISTOR 2SA844-E
Q605	8-729-266-82	TRANSISTOR 2SC2668-O
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q703	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q704	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q706	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q707	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q708	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q709	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q710	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q711	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q712	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q713	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q714	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q715	8-729-800-10	TRANSISTOR 2SC3068
Q716	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q717	8-729-119-76	TRANSISTOR 2SA1175-HFE

<RESISTOR>

R1	1-249-405-11	CARBON	100	5%	1/4W
R2	1-249-405-11	CARBON	100	5%	1/4W
R3	1-249-405-11	CARBON	100	5%	1/4W
R4	1-249-437-11	CARBON	47K	5%	1/4W
R5	1-249-405-11	CARBON	100	5%	1/4W
R6	1-249-432-11	CARBON	18K	5%	1/4W
R7	1-249-434-11	CARBON	27K	5%	1/4W
R8	1-249-422-11	CARBON	2.7K	5%	1/4W
R9	1-249-405-11	CARBON	100	5%	1/4W
R10	1-249-405-11	CARBON	100	5%	1/4W
R11	1-249-433-11	CARBON	22K	5%	1/4W
R12	1-249-405-11	CARBON	100	5%	1/4W
R13	1-249-437-11	CARBON	47K	5%	1/4W
R14	1-249-429-11	CARBON	10K	5%	1/4W
R101	1-249-417-11	CARBON	1K	5%	1/4W
R102	1-249-418-11	CARBON	1.2K	5%	1/4W
R103	1-249-425-11	CARBON	4.7K	5%	1/4W
R104	1-249-405-11	CARBON	100	5%	1/4W
R105	1-215-437-91	METAL	4.7K	1%	1/4W
R106	1-249-430-11	CARBON	12K	5%	1/4W
R107	1-249-433-11	CARBON	22K	5%	1/4W
R108	1-215-427-00	METAL	1.8K	1%	1/4W

BA

REF.NO.	PART NO.	DESCRIPTION				REMARK
R109	1-215-415-00	METAL	560	1%	1/4W	
R110	1-249-405-11	CARBON	100	5%	1/4W	
R111	1-215-431-00	METAL	2.7K	1%	1/4W	
R112	1-249-421-11	CARBON	2.2K	5%	1/4W	
R113	1-249-393-11	CARBON	10	5%	1/4W	
R201	1-249-417-11	CARBON	1K	5%	1/4W	
R202	1-249-418-11	CARBON	1.2K	5%	1/4W	
R203	1-249-425-11	CARBON	4.7K	5%	1/4W	
R204	1-249-405-11	CARBON	100	5%	1/4W	
R205	1-215-437-91	METAL	4.7K	1%	1/4W	
R206	1-249-430-11	CARBON	12K	5%	1/4W	
R207	1-249-433-11	CARBON	22K	5%	1/4W	
R208	1-215-427-00	METAL	1.8K	1%	1/4W	
R209	1-215-415-00	METAL	560	1%	1/4W	
R210	1-249-405-11	CARBON	100	5%	1/4W	
R211	1-215-431-00	METAL	2.7K	1%	1/4W	
R212	1-249-421-11	CARBON	2.2K	5%	1/4W	
R213	1-249-393-11	CARBON	10	5%	1/4W	
R301	1-249-417-11	CARBON	1K	5%	1/4W	
R302	1-249-418-11	CARBON	1.2K	5%	1/4W	
R303	1-249-426-11	CARBON	5.6K	5%	1/4W	
R304	1-249-405-11	CARBON	100	5%	1/4W	
R305	1-249-426-11	CARBON	5.6K	5%	1/4W	
R306	1-249-430-11	CARBON	12K	5%	1/4W	
R307	1-249-432-11	CARBON	18K	5%	1/4W	
R308	1-249-421-11	CARBON	2.2K	5%	1/4W	
R309	1-249-417-11	CARBON	1K	5%	1/4W	
R310	1-249-405-11	CARBON	100	5%	1/4W	
R311	1-249-417-11	CARBON	1K	5%	1/4W	
R312	1-249-421-11	CARBON	2.2K	5%	1/4W	
R313	1-249-393-11	CARBON	10	5%	1/4W	
R401	1-249-417-11	CARBON	1K	5%	1/4W	
R402	1-249-418-11	CARBON	1.2K	5%	1/4W	
R403	1-249-425-11	CARBON	4.7K	5%	1/4W	
R404	1-249-405-11	CARBON	100	5%	1/4W	
R405	1-215-437-91	METAL	4.7K	1%	1/4W	
R406	1-249-430-11	CARBON	12K	5%	1/4W	
R407	1-249-433-11	CARBON	22K	5%	1/4W	
R408	1-215-427-00	METAL	1.8K	1%	1/4W	
R409	1-215-415-00	METAL	560	1%	1/4W	
R410	1-249-405-11	CARBON	100	5%	1/4W	
R411	1-215-431-00	METAL	2.7K	1%	1/4W	
R412	1-249-421-11	CARBON	2.2K	5%	1/4W	
R413	1-249-393-11	CARBON	10	5%	1/4W	
R501	1-249-417-11	CARBON	1K	5%	1/4W	
R502	1-249-418-11	CARBON	1.2K	5%	1/4W	
R503	1-249-425-11	CARBON	4.7K	5%	1/4W	
R504	1-249-405-11	CARBON	100	5%	1/4W	
R505	1-215-437-91	METAL	4.7K	1%	1/4W	
R506	1-249-430-11	CARBON	12K	5%	1/4W	
R507	1-249-433-11	CARBON	22K	5%	1/4W	
R508	1-215-427-00	METAL	1.8K	1%	1/4W	
R509	1-215-415-00	METAL	560	1%	1/4W	
R510	1-249-405-11	CARBON	100	5%	1/4W	
R511	1-215-431-00	METAL	2.7K	1%	1/4W	
R512	1-249-421-11	CARBON	2.2K	5%	1/4W	
R513	1-249-393-11	CARBON	10	5%	1/4W	
R601	1-249-417-11	CARBON	1K	5%	1/4W	
R602	1-249-418-11	CARBON	1.2K	5%	1/4W	
R603	1-249-425-11	CARBON	4.7K	5%	1/4W	
R604	1-249-405-11	CARBON	100	5%	1/4W	
R605	1-215-437-91	METAL	4.7K	1%	1/4W	
R606	1-249-430-11	CARBON	12K	5%	1/4W	
R607	1-249-433-11	CARBON	22K	5%	1/4W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R608	1-215-427-00	METAL	1.8K	1%	1/4W	
R609	1-215-415-00	METAL	560	1%	1/4W	
R610	1-249-405-11	CARBON	100	5%	1/4W	
R611	1-215-431-00	METAL	2.7K	1%	1/4W	
R612	1-249-421-11	CARBON	2.2K	5%	1/4W	
R613	1-249-393-11	CARBON	10	5%	1/4W	
R701	1-249-433-11	CARBON	22K	5%	1/4W	
R702	1-249-438-11	CARBON	56K	5%	1/4W	
R703	1-249-417-11	CARBON	1K	5%	1/4W	
R704	1-249-417-11	CARBON	1K	5%	1/4W	
R705	1-249-424-11	CARBON	3.9K	5%	1/4W	
R706	1-249-417-11	CARBON	1K	5%	1/4W	
R707	1-249-429-11	CARBON	10K	5%	1/4W	
R708	1-249-421-11	CARBON	2.2K	5%	1/4W	
R709	1-249-419-11	CARBON	1.5K	5%	1/4W	
R710	1-249-418-11	CARBON	1.2K	5%	1/4W	
R711	1-249-434-11	CARBON	27K	5%	1/4W	
R712	1-249-433-11	CARBON	22K	5%	1/4W	
R713	1-249-422-11	CARBON	2.7K	5%	1/4W	
R714	1-249-427-11	CARBON	6.8K	5%	1/4W	
R715	1-249-433-11	CARBON	22K	5%	1/4W	
R716	1-249-422-11	CARBON	2.7K	5%	1/4W	
R717	1-249-425-11	CARBON	4.7K	5%	1/4W	
R718	1-249-410-11	CARBON	270	5%	1/4W	
R719	1-249-414-11	CARBON	560	5%	1/4W	
R720	1-247-850-11	CARBON	6.2K	5%	1/4W	
R721	1-249-438-11	CARBON	56K	5%	1/4W	
R722	1-249-441-11	CARBON	100K	5%	1/4W	
R723	1-249-437-11	CARBON	47K	5%	1/4W	
R724	1-249-429-11	CARBON	10K	5%	1/4W	
R725	1-249-438-11	CARBON	56K	5%	1/4W	
R726	1-247-895-00	CARBON	470K	5%	1/4W	
R727	1-249-425-11	CARBON	4.7K	5%	1/4W	
R728	1-249-435-11	CARBON	33K	5%	1/4W	
R729	1-249-423-11	CARBON	3.3K	5%	1/4W	
R730	1-249-421-11	CARBON	2.2K	5%	1/4W	
R731	1-249-422-11	CARBON	2.7K	5%	1/4W	
R732	1-249-422-11	CARBON	2.7K	5%	1/4W	
R733	1-249-421-11	CARBON	2.2K	5%	1/4W	
R734	1-249-421-11	CARBON	2.2K	5%	1/4W	
R735	1-249-421-11	CARBON	2.2K	5%	1/4W	
R736	1-249-425-11	CARBON	4.7K	5%	1/4W	
R737	1-249-405-11	CARBON	100	5%	1/4W	
R738	1-249-441-11	CARBON	100K	5%	1/4W	
R739	1-249-433-11	CARBON	22K	5%	1/4W	
R740	1-249-417-11	CARBON	1K	5%	1/4W	
R741	1-202-473-00	SOLID	5.6M	5%	1/4W	
R906	1-249-389-11	CARBON	4.7	5%	1/4W	
R907	1-249-389-11	CARBON	4.7	5%	1/4W	

<VARIABLE RESISTOR>

RV101	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV201	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV401	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV501	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV601	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)

BA3

REF.NO.	PART NO.	DESCRIPTION			REMARK
**********					
	*A-1135-662-A	BA3 BOARD, COMPLETE (BVM-2811 ONLY)			
		**********			
	*4-353-708-00	HOOK, FINGER			
		<CAPACITOR>			
C1	1-126-204-11	ELECT	47MF	20%	16V
C2	1-126-204-11	ELECT	47MF	20%	16V
C3	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C4	1-126-204-11	ELECT	47MF	20%	16V
C5	1-124-779-00	ELECT	10MF	20%	16V
C6	1-124-779-00	ELECT	10MF	20%	16V
C7	1-124-779-00	ELECT	10MF	20%	16V
C9	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C10	1-124-779-00	ELECT	10MF	20%	16V
C11	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C12	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C13	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C14	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C15	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C16	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C17	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C18	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C19	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C20	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C21	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C22	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C23	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C24	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C25	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C26	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C27	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C28	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C29	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C30	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C31	1-126-769-21	ELECT CHIP	100MF	20%	14V
C32	1-126-769-21	ELECT CHIP	100MF	20%	14V
C33	1-126-769-21	ELECT CHIP	100MF	20%	14V
C34	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C35	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C36	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C37	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C38	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C39	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C40	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C41	1-126-769-21	ELECT CHIP	100MF	20%	14V
C42	1-126-769-21	ELECT CHIP	100MF	20%	14V
C43	1-126-769-21	ELECT CHIP	100MF	20%	14V
C44	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C46	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C47	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C51	1-126-769-21	ELECT CHIP	100MF	20%	14V
C52	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C61	1-126-769-21	ELECT CHIP	100MF	20%	14V
C62	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C101	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C102	1-124-779-00	ELECT	10MF	20%	16V
C103	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C104	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C105	1-126-204-11	ELECT	47MF	20%	16V
C111	1-126-769-21	ELECT CHIP	100MF	20%	14V
C112	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C113	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C114	1-126-769-21	ELECT CHIP	100MF	20%	14V
C115	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C116	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C201	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C202	1-124-779-00	ELECT	10MF	20%	16V
C203	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C204	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C205	1-126-204-11	ELECT	47MF	20%	16V
C211	1-126-769-21	ELECT CHIP	100MF	20%	14V
C212	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C213	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C214	1-126-769-21	ELECT CHIP	100MF	20%	14V
C215	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C216	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C301	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C302	1-124-779-00	ELECT	10MF	20%	16V
C303	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C304	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C305	1-124-779-00	ELECT	10MF	20%	16V
C306	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C311	1-126-769-21	ELECT CHIP	100MF	20%	14V
C312	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C313	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C314	1-126-769-21	ELECT CHIP	100MF	20%	14V
C315	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C316	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C401	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C402	1-124-779-00	ELECT	10MF	20%	16V
C403	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C404	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C411	1-126-769-21	ELECT CHIP	100MF	20%	14V
C412	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C413	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C414	1-126-769-21	ELECT CHIP	100MF	20%	14V
C415	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C416	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C501	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C502	1-124-779-00	ELECT	10MF	20%	16V
C503	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C504	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C505	1-126-204-11	ELECT	47MF	20%	16V
C511	1-126-769-21	ELECT CHIP	100MF	20%	14V
C512	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C513	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C514	1-126-769-21	ELECT CHIP	100MF	20%	14V
C515	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C516	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C601	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C602	1-124-779-00	ELECT	10MF	20%	16V
C603	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C604	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C611	1-126-769-21	ELECT CHIP	100MF	20%	14V
C612	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C613	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C614	1-126-769-21	ELECT CHIP	100MF	20%	14V
C615	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C616	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C701	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C702	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C703	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C704	1-126-204-11	ELECT	47MF	20%	16V
C705	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V

BA3

REF.NO.	PART NO.	DESCRIPTION			REMARK
C706	1-126-193-11	ELECT	1MF	20%	50V
C707	1-126-603-11	ELECT	4.7MF	20%	35V
C708	1-124-779-00	ELECT	10MF	20%	16V
C709	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C710	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C711	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C712	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C713	1-126-193-11	ELECT	1MF	20%	50V
C714	1-124-779-00	ELECT	10MF	20%	16V
C715	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C716	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C717	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C718	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C719	1-163-038-91	CERAMIC CHIP	0.1MF		25V

<CONNECTOR>

CN1	*1-566-041-11	PIN, CONNECTOR	2P
CN2	*1-566-041-11	PIN, CONNECTOR	2P
CN3	*1-566-041-11	PIN, CONNECTOR	2P
CN4	*1-566-041-11	PIN, CONNECTOR	2P
CN5	*1-566-041-11	PIN, CONNECTOR	2P
CN6	*1-566-041-11	PIN, CONNECTOR	2P
CN7	*1-566-044-11	PIN, CONNECTOR	5P
CN8	*1-566-041-11	PIN, CONNECTOR	2P

<TRIMMER>

CV101	1-141-304-21	TRIMMER, CERAMIC
CV102	1-141-260-00	TRIMAR, CERAMIC
CV201	1-141-304-21	TRIMMER, CERAMIC
CV202	1-141-260-00	TRIMAR, CERAMIC
CV401	1-141-304-21	TRIMMER, CERAMIC
CV402	1-141-260-00	TRIMAR, CERAMIC
CV501	1-141-304-21	TRIMMER, CERAMIC
CV502	1-141-260-00	TRIMAR, CERAMIC
CV601	1-141-304-21	TRIMMER, CERAMIC
CV602	1-141-260-00	TRIMAR, CERAMIC

<DIODE>

D1	8-719-157-36	DIODE RD6.8M-B
D2	8-719-104-34	DIODE 1S2836
D3	8-719-400-18	DIODE MA152WK
D4	8-719-104-34	DIODE 1S2836
D701	8-719-800-76	DIODE 1SS226
D702	8-719-105-64	DIODE RD4.3M-B2
D703	8-719-400-18	DIODE MA152WK
D704	8-719-104-34	DIODE 1S2836
D705	8-719-400-18	DIODE MA152WK
D706	8-719-104-34	DIODE 1S2836
D707	8-719-104-34	DIODE 1S2836

<IC>

IC1	8-759-710-07	IC NJM2234M
IC2	8-759-710-07	IC NJM2234M
IC3	8-759-710-07	IC NJM2234M
IC4	8-759-710-07	IC NJM2234M
IC5	8-759-300-71	IC HD14053BFP
IC6	8-759-300-71	IC HD14053BFP

<TRANSISTOR>

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q1	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q2	8-729-901-06	TRANSISTOR DTA144EK	
Q3	8-729-901-01	TRANSISTOR DTC144EK	
Q4	8-729-901-06	TRANSISTOR DTA144EK	
Q5	8-729-901-06	TRANSISTOR DTA144EK	
Q6	8-729-901-06	TRANSISTOR DTA144EK	
Q7	8-729-901-06	TRANSISTOR DTA144EK	
Q8	8-729-901-01	TRANSISTOR DTC144EK	
Q9	8-729-901-01	TRANSISTOR DTC144EK	
Q10	8-729-901-06	TRANSISTOR DTA144EK	
Q11	8-729-901-01	TRANSISTOR DTC144EK	
Q12	8-729-901-01	TRANSISTOR DTC144EK	
Q101	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q102	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q103	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q104	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q105	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q201	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q202	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q203	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q204	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q205	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q301	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q302	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q303	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q304	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q305	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q401	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q402	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q403	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q404	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q405	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q501	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q502	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q503	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q504	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q505	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q601	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q602	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q603	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q604	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q605	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q701	8-729-216-22	TRANSISTOR 2SA1162-G	
Q702	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q703	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q704	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q705	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q706	8-729-216-22	TRANSISTOR 2SA1162-G	
Q707	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q708	8-729-216-22	TRANSISTOR 2SA1162-G	
Q709	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q710	8-729-216-22	TRANSISTOR 2SA1162-G	
Q711	8-729-216-22	TRANSISTOR 2SA1162-G	
Q712	8-729-216-22	TRANSISTOR 2SA1162-G	
Q713	8-729-216-22	TRANSISTOR 2SA1162-G	
Q714	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q715	8-729-107-46	TRANSISTOR 2SC3624A-L15	
Q716	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q717	8-729-216-22	TRANSISTOR 2SA1162-G	

<RESISTOR>

R1	1-216-025-00	METAL GLAZE	100	5%	1/10W
R2	1-216-025-00	METAL GLAZE	100	5%	1/10W

REF.NO.	PART NO.	DESCRIPTION				REMARK
R3	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R4	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R5	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R6	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R7	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R8	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R9	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R11	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R12	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R13	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R14	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R15	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R16	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R17	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R18	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R19	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R20	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R21	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R22	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R23	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R24	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R25	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R26	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R40	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R41	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R42	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R43	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R44	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R45	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R46	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R47	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R48	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R49	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R50	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R51	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R52	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R53	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R54	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R55	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R56	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R57	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R58	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R59	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R60	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R61	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R62	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R63	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R64	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R65	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R66	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R67	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R68	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R69	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R71	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R72	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R73	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R101	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R102	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R103	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R104	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R105	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R106	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R107	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R108	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W	
R109	1-216-645-11	METAL CHIP	560	0.50%	1/10W	
R110	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R111	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	
R112	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R113	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R201	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R202	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R203	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R204	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R205	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R206	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R207	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R208	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W	
R209	1-216-645-11	METAL CHIP	560	0.50%	1/10W	
R210	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R211	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	
R212	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R213	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R301	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R302	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R303	1-216-067-91	METAL GLAZE	5.6K	5%	1/10W	
R304	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R305	1-216-067-91	METAL GLAZE	5.6K	5%	1/10W	
R306	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R307	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R308	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R309	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R310	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R311	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R312	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R313	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R401	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R402	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R403	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R404	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R405	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R406	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R407	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R408	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W	
R409	1-216-645-11	METAL CHIP	560	0.50%	1/10W	
R410	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R411	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	
R412	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R413	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R501	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R502	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R503	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R504	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R505	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R506	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R507	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R508	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W	
R509	1-216-645-11	METAL CHIP	560	0.50%	1/10W	
R510	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R511	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	
R512	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R513	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R601	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R602	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R603	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R604	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R605	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R606	1-216-075-00	METAL GLAZE	12K	5%	1/10W	

BA3 | BC

REF.NO.	PART NO.	DESCRIPTION				REMARK
R607	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R608	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W	
R609	1-216-645-11	METAL CHIP	560	0.50%	1/10W	
R610	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R611	1-216-661-11	METAL CHIP	2.7K	0.50%	1/10W	
R612	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R613	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R701	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R702	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R703	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R704	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R705	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R706	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R707	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R708	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R709	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R710	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R711	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R712	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R713	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R714	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R715	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R716	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R717	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R718	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R719	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R720	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R721	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R722	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R723	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R724	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R725	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R726	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R727	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R728	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R729	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R730	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R731	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R732	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R733	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R734	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R735	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R736	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R737	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R738	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R739	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R741	1-216-288-11	METAL GLAZE	5.6M	5%	1/8W	
R742	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R743	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R744	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R745	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R748	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R749	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R750	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R751	1-216-001-00	METAL GLAZE	10	5%	1/10W	

<VARIABLE RESISTOR>

RV101	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV201	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV401	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV501	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)
RV601	1-237-514-21	RES, ADJ, CERMET 500	(GAIN)

REF.NO.	PART NO.	DESCRIPTION				REMARK
		<SWITCH>				
S1	1-570-857-11	SWITCH, SLIDE				
**********						
	*A-1135-357-A	BC BOARD, COMPLETE (BVM-2811/3011 ONLY)				
		**********				
	*4-353-708-00	HOOK, FINGER				
		<CAPACITOR>				
C1	1-102-951-00	CERAMIC	15PF	5%	50V	
C2	1-102-951-00	CERAMIC	15PF	5%	50V	
C3	1-102-947-00	CERAMIC	10PF	0.5PF	50V	
C4	1-101-880-00	CERAMIC	47PF	5%	50V	
C5	1-102-965-00	CERAMIC	39PF	5%	50V	
C6	1-101-004-00	CERAMIC	0.01MF		50V	
C7	1-102-935-00	CERAMIC	2PF	0.25PF	50V	
C8	1-101-361-00	CERAMIC	39PF	5%	50V	
C9	1-126-964-11	ELECT	10MF	20%	16V	
C10	1-126-964-11	ELECT	10MF	20%	16V	
C11	1-101-004-00	CERAMIC	0.01MF		50V	
C12	1-101-004-00	CERAMIC	0.01MF		50V	
C13	1-101-004-00	CERAMIC	0.01MF		50V	
C14	1-101-004-00	CERAMIC	0.01MF		50V	
C15	1-124-910-11	ELECT	47MF	20%	16V	
C16	1-124-910-11	ELECT	47MF	20%	16V	
C17	1-124-034-51	ELECT	33MF	20%	16V	
C18	1-101-004-00	CERAMIC	0.01MF		50V	
C19	1-102-953-00	CERAMIC	18PF	5%	50V	
C20	1-102-951-00	CERAMIC	15PF	5%	50V	
C22	1-101-884-00	CERAMIC	56PF	5%	50V	
C23	1-123-369-00	ELECT	4.7MF	20%	25V	
C24	1-163-157-00	FILM	0.022MF	5%	50V	
C25	1-163-157-00	FILM	0.022MF	5%	50V	
C26	1-101-004-00	CERAMIC	0.01MF		50V	
C27	1-101-004-00	CERAMIC	0.01MF		50V	
C28	1-124-902-00	ELECT	0.47MF	20%	50V	
C29	1-101-004-00	CERAMIC	0.01MF		50V	
C30	1-101-004-00	CERAMIC	0.01MF		50V	
C31	1-124-119-00	ELECT	330MF	20%	16V	
C34	1-109-676-00	MICA	130PF	1%	500V	
C35	1-109-631-00	MICA	330PF	1%	500V	
C36	1-102-960-00	CERAMIC	24PF	5%	50V	
C39	1-109-676-00	MICA	130PF	1%	500V	
C40	1-109-631-00	MICA	330PF	1%	500V	
C41	1-102-960-00	CERAMIC	24PF	5%	50V	
C42	1-101-004-00	CERAMIC	0.01MF		50V	
C50	1-102-942-00	CERAMIC	5PF	0.5PF	50V	
C101	1-124-034-51	ELECT	33MF	20%	16V	
C102	1-101-004-00	CERAMIC	0.01MF		50V	
C103	1-126-966-11	ELECT	33MF	20%	25V	
C104	1-124-034-51	ELECT	33MF	20%	16V	
C105	1-101-004-00	CERAMIC	0.01MF		50V	
C106	1-126-966-11	ELECT	33MF	20%	25V	
C107	1-101-004-00	CERAMIC	0.01MF		50V	
C111	1-124-034-51	ELECT	33MF	20%	16V	
C112	1-124-034-51	ELECT	33MF	20%	16V	
C113	1-124-034-51	ELECT	33MF	20%	16V	
C116	1-101-004-00	CERAMIC	0.01MF		50V	
C117	1-101-004-00	CERAMIC	0.01MF		50V	
C118	1-101-004-00	CERAMIC	0.01MF		50V	
C121	1-124-034-51	ELECT	33MF	20%	16V	

BC

REF.NO.	PART NO.	DESCRIPTION			REMARK
C122	1-124-034-51	ELECT	33MF	20%	16V
C123	1-124-034-51	ELECT	33MF	20%	16V
C126	1-101-004-00	CERAMIC	0.01MF		50V
C127	1-101-004-00	CERAMIC	0.01MF		50V
C128	1-101-004-00	CERAMIC	0.01MF		50V
C131	1-124-034-51	ELECT	33MF	20%	16V
C132	1-124-034-51	ELECT	33MF	20%	16V
C133	1-124-034-51	ELECT	33MF	20%	16V
C136	1-101-004-00	CERAMIC	0.01MF		50V
C137	1-101-004-00	CERAMIC	0.01MF		50V
C138	1-101-004-00	CERAMIC	0.01MF		50V
C139	1-101-004-00	CERAMIC	0.01MF		50V
C143	1-101-004-00	CERAMIC	0.01MF		50V
C144	1-124-916-11	ELECT	22MF	20%	25V
C201	1-126-966-11	ELECT	33MF	20%	25V
C202	1-101-004-00	CERAMIC	0.01MF		50V
		<TRIMMER>			
CV1	1-141-171-00	CAP, TRIMMER 15P			
CV2	1-141-171-00	CAP, TRIMMER 15P			
		<DIODE>			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-920-95	DIODE 1T25-0			
D3	8-719-911-19	DIODE 1SS119			
D4	8-719-110-13	DIODE RD9.1ESB2			
D5	8-719-911-19	DIODE 1SS119			
D6	8-719-911-19	DIODE 1SS119			
D7	8-719-911-19	DIODE 1SS119			
		<IC>			
IC1	8-759-204-21	IC TA7193P			
IC2	8-752-006-12	IC CX20061			
IC3	8-759-140-53	IC UPD4053BC			
		<COIL>			
L1	1-408-533-00	COIL, VARIABLE			
L2	1-408-513-00	COIL (VARIABLE)			
L3	1-408-533-00	COIL, VARIABLE			
L4	1-408-429-00	INDUCTOR	470UH		
L5	1-408-429-00	INDUCTOR	470UH		
L6	1-408-429-00	INDUCTOR	470UH		
		<TRANSISTOR>			
Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q4	8-729-800-10	TRANSISTOR 2SC3068			
Q5	8-729-800-10	TRANSISTOR 2SC3068			
Q6	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q9	8-729-384-48	TRANSISTOR 2SA844-E			
Q10	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q11	8-729-384-48	TRANSISTOR 2SA844-E			
Q12	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q13	8-729-384-48	TRANSISTOR 2SA844-E			
Q14	8-729-384-48	TRANSISTOR 2SA844-E			
Q15	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q16	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q17	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q18	8-729-800-10	TRANSISTOR 2SC3068			
Q19	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q20	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q21	8-729-800-10	TRANSISTOR 2SC3068			
Q101	8-729-140-97	TRANSISTOR 2SB734-34			
Q103	8-729-900-63	TRANSISTOR DTA124ES			
Q104	8-729-900-63	TRANSISTOR DTA124ES			
		<RESISTOR>			
R1	1-249-428-11	CARBON	8.2K	5%	1/4W
R2	1-249-429-11	CARBON	10K	5%	1/4W
R3	1-249-405-11	CARBON	100	5%	1/4W
R4	1-249-422-11	CARBON	2.7K	5%	1/4W
R5	1-215-421-00	METAL	1K	1%	1/4W
R6	1-215-398-00	METAL	110	1%	1/4W
R7	1-249-405-11	CARBON	100	5%	1/4W
R8	1-215-421-00	METAL	1K	1%	1/4W
R9	1-215-421-00	METAL	1K	1%	1/4W
R10	1-215-423-00	METAL	1.2K	1%	1/4W
R11	1-249-405-11	CARBON	100	5%	1/4W
R12	1-215-425-00	METAL	1.5K	1%	1/4W
R13	1-215-425-00	METAL	1.5K	1%	1/4W
R14	1-215-405-00	METAL	220	1%	1/4W
R15	1-249-405-11	CARBON	100	5%	1/4W
R16	1-249-433-11	CARBON	22K	5%	1/4W
R17	1-249-433-11	CARBON	22K	5%	1/4W
R18	1-249-421-11	CARBON	2.2K	5%	1/4W
R19	1-249-425-11	CARBON	4.7K	5%	1/4W
R20	1-249-429-11	CARBON	10K	5%	1/4W
R22	1-249-429-11	CARBON	10K	5%	1/4W
R23	1-249-431-11	CARBON	15K	5%	1/4W
R24	1-249-428-11	CARBON	8.2K	5%	1/4W
R25	1-249-405-11	CARBON	100	5%	1/4W
R26	1-249-417-11	CARBON	1K	5%	1/4W
R27	1-249-405-11	CARBON	100	5%	1/4W
R28	1-249-417-11	CARBON	1K	5%	1/4W
R29	1-249-405-11	CARBON	100	5%	1/4W
R30	1-249-425-11	CARBON	4.7K	5%	1/4W
R31	1-249-425-11	CARBON	4.7K	5%	1/4W
R32	1-249-433-11	CARBON	22K	5%	1/4W
R33	1-249-405-11	CARBON	100	5%	1/4W
R34	1-215-425-00	METAL	1.5K	1%	1/4W
R35	1-215-425-00	METAL	1.5K	1%	1/4W
R36	1-215-425-00	METAL	1.5K	1%	1/4W
R37	1-215-425-00	METAL	1.5K	1%	1/4W
R38	1-215-439-00	METAL	5.6K	1%	1/4W
R39	1-215-469-91	METAL	100K	1%	1/4W
R40	1-247-903-00	CARBON	1M	5%	1/4W
R41	1-249-427-11	CARBON	6.8K	5%	1/4W
R42	1-249-420-11	CARBON	1.8K	5%	1/4W
R43	1-249-415-11	CARBON	680	5%	1/4W
R44	1-249-418-11	CARBON	1.2K	5%	1/4W
R45	1-249-422-11	CARBON	2.7K	5%	1/4W
R47	1-249-413-11	CARBON	470	5%	1/4W
R49	1-249-413-11	CARBON	470	5%	1/4W
R50	1-249-405-11	CARBON	100	5%	1/4W
R51	1-215-417-00	METAL	680	1%	1/4W
R52	1-215-417-00	METAL	680	1%	1/4W
R53	1-215-413-00	METAL	470	1%	1/4W
R54	1-215-443-00	METAL	8.2K	1%	1/4W

BC **BD**

REF.NO.	PART NO.	DESCRIPTION				REMARK
R55	1-249-421-11	CARBON	2.2K	5%	1/4W	
R56	1-249-441-11	CARBON	100K	5%	1/4W	
R57	1-249-417-11	CARBON	1K	5%	1/4W	
R58	1-249-417-11	CARBON	1K	5%	1/4W	
R59	1-249-429-11	CARBON	10K	5%	1/4W	
R60	1-249-433-11	CARBON	22K	5%	1/4W	
R61	1-249-420-11	CARBON	1.8K	5%	1/4W	
R62	1-249-429-11	CARBON	10K	5%	1/4W	
R63	1-249-425-11	CARBON	4.7K	5%	1/4W	
R64	1-249-429-11	CARBON	10K	5%	1/4W	
R65	1-215-421-00	METAL	1K	1%	1/4W	
R68	1-249-427-11	CARBON	6.8K	5%	1/4W	
R69	1-215-420-00	METAL	910	1%	1/4W	
R70	1-215-420-00	METAL	910	1%	1/4W	
R71	1-215-417-00	METAL	680	1%	1/4W	
R72	1-249-422-11	CARBON	2.7K	5%	1/4W	
R73	1-249-405-11	CARBON	100	5%	1/4W	
R74	1-215-421-00	METAL	1K	1%	1/4W	
R77	1-249-427-11	CARBON	6.8K	5%	1/4W	
R78	1-215-420-00	METAL	910	1%	1/4W	
R79	1-215-420-00	METAL	910	1%	1/4W	
R80	1-215-417-00	METAL	680	1%	1/4W	
R81	1-249-422-11	CARBON	2.7K	5%	1/4W	
R82	1-249-405-11	CARBON	100	5%	1/4W	
R83	1-215-481-00	METAL	330K	1%	1/4W	
R85	1-215-429-00	METAL	2.2K	1%	1/4W	
R86	1-215-415-00	METAL	560	1%	1/4W	
R87	1-215-477-00	METAL	220K	1%	1/4W	
R88	1-215-457-00	METAL	33K	1%	1/4W	
R90	1-249-429-11	CARBON	10K	5%	1/4W	
R91	1-249-433-11	CARBON	22K	5%	1/4W	
R95	1-249-429-11	CARBON	10K	5%	1/4W	
R96	1-249-433-11	CARBON	22K	5%	1/4W	
R101	1-249-423-11	CARBON	3.3K	5%	1/4W	
R102	1-249-419-11	CARBON	1.5K	5%	1/4W	
R103	1-249-427-11	CARBON	6.8K	5%	1/4W	
R104	1-249-422-11	CARBON	2.7K	5%	1/4W	
R105	1-249-429-11	CARBON	10K	5%	1/4W	
R202	1-249-429-11	CARBON	10K	5%	1/4W	

<VARIABLE RESISTOR>

RV1	1-237-500-21	RES, ADJ, CERMET 1K (Y-C DELAY TIME)
RV2	1-237-504-21	RES, ADJ, CERMET 20K (B-Y SYSTEM PHASE)
RV3	1-237-499-21	RES, ADJ, CERMET 500 (APL)
RV4	1-237-501-21	RES, ADJ, CERMET 2K (COLOR DIFFERENCE LEVEL)
RV5	1-237-501-21	RES, ADJ, CERMET 2K (COLOR DIFFERENCE LEVEL)

<CRYSTAL>

X1	1-567-505-11	OSCILLATOR, CRYSTAL

****

	*A-1135-391-A	BD BOARD, COMPLETE (BVM-3011P ONLY)
		**********
	*4-353-708-00	HOOK, FINGER

<CAPACITOR>

C1	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C2	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C3	1-102-963-00	CERAMIC	33PF	5%	50V
C4	1-101-880-00	CERAMIC	47PF	5%	50V
C6	1-101-888-00	CERAMIC	68PF	5%	50V
C7	1-102-963-00	CERAMIC	33PF	5%	50V
C8	1-102-943-00	CERAMIC	6PF	0.5PF	50V
C9	1-126-964-11	ELECT	10MF	20%	16V
C10	1-126-964-11	ELECT	10MF	20%	16V
C11	1-101-004-00	CERAMIC	0.01MF		50V
C12	1-101-004-00	CERAMIC	0.01MF		50V
C13	1-101-004-00	CERAMIC	0.01MF		50V
C14	1-101-004-00	CERAMIC	0.01MF		50V
C15	1-101-004-00	CERAMIC	0.01MF		50V
C16	1-101-004-00	CERAMIC	0.01MF		50V
C17	1-136-165-00	FILM	0.1MF	5%	50V
C18	1-102-950-00	CERAMIC	13PF	5%	50V
C19	1-102-951-00	CERAMIC	15PF	5%	50V
C20	1-101-888-00	CERAMIC	68PF	5%	50V
C21	1-163-157-00	FILM	0.022MF	5%	50V
C22	1-163-157-00	FILM	0.022MF	5%	50V
C23	1-124-903-11	ELECT	1MF	20%	50V
C24	1-101-004-00	CERAMIC	0.01MF		50V
C25	1-124-910-11	ELECT	47MF	20%	16V
C26	1-109-628-00	MICA	160PF	1%	500V
C27	1-102-960-00	CERAMIC	24PF	5%	50V
C28	1-109-631-00	MICA	330PF	1%	500V
C29	1-124-910-11	ELECT	47MF	20%	16V
C30	1-109-628-00	MICA	160PF	1%	500V
C31	1-102-960-00	CERAMIC	24PF	5%	50V
C32	1-109-631-00	MICA	330PF	1%	500V
C33	1-101-004-00	CERAMIC	0.01MF		50V
C34	1-136-153-00	FILM	0.01MF	5%	50V
C35	1-101-004-00	CERAMIC	0.01MF		50V
C36	1-124-902-00	ELECT	0.47MF	20%	50V
C37	1-101-004-00	CERAMIC	0.01MF		50V
C38	1-123-382-00	ELECT	3.3MF	20%	50V
C39	1-109-667-11	MICA	56PF	1%	500V
C40	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C41	1-109-621-00	MICA	220PF	1%	500V
C43	1-124-910-11	ELECT	47MF	20%	16V
C44	1-124-910-11	ELECT	47MF	20%	16V
C45	1-101-004-00	CERAMIC	0.01MF		50V
C46	1-136-153-00	FILM	0.01MF	5%	50V
C49	1-124-902-00	ELECT	0.47MF	20%	50V
C50	1-123-382-00	ELECT	3.3MF	20%	50V
C51	1-109-667-11	MICA	56PF	1%	500V
C52	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C53	1-109-621-00	MICA	220PF	1%	500V
C55	1-124-910-11	ELECT	47MF	20%	16V
C56	1-124-910-11	ELECT	47MF	20%	16V
C57	1-101-004-00	CERAMIC	0.01MF		50V
C58	1-101-004-00	CERAMIC	0.01MF		50V
C59	1-101-004-00	CERAMIC	0.01MF		50V
C60	1-124-910-11	ELECT	47MF	20%	16V
C62	1-102-960-00	CERAMIC	24PF	5%	50V
C63	1-101-884-00	CERAMIC	56PF	5%	50V
C64	1-101-884-00	CERAMIC	56PF	5%	50V
C65	1-102-951-00	CERAMIC	15PF	5%	50V
C66	1-102-965-00	CERAMIC	39PF	5%	50V
C67	1-102-935-00	CERAMIC	2PF	0.25PF	50V
C68	1-124-034-51	ELECT	33MF	20%	16V
C69	1-124-034-51	ELECT	33MF	20%	16V
C70	1-123-369-00	ELECT	4.7MF	20%	50V
C71	1-101-004-00	CERAMIC	0.01MF		50V

BD

REF.NO.	PART NO.	DESCRIPTION			REMARK
C75	1-101-004-00	CERAMIC	0.01MF		50V
C100	1-124-034-51	ELECT	33MF	20%	16V
C101	1-126-967-11	ELECT	47MF	20%	25V
C102	1-124-034-51	ELECT	33MF	20%	16V
C103	1-124-034-51	ELECT	33MF	20%	16V
C104	1-124-034-51	ELECT	33MF	20%	16V
C106	1-124-034-51	ELECT	33MF	20%	16V
C107	1-124-034-51	ELECT	33MF	20%	16V
C108	1-124-034-51	ELECT	33MF	20%	16V
C109	1-124-034-51	ELECT	33MF	20%	16V
C110	1-124-034-51	ELECT	33MF	20%	16V
C111	1-124-034-51	ELECT	33MF	20%	16V
C112	1-124-119-00	ELECT	330MF	20%	16V
C114	1-124-034-51	ELECT	33MF	20%	16V
C115	1-124-034-51	ELECT	33MF	20%	16V
C121	1-101-004-00	CERAMIC	0.01MF		50V
C122	1-101-004-00	CERAMIC	0.01MF		50V
C123	1-101-004-00	CERAMIC	0.01MF		50V
C124	1-101-004-00	CERAMIC	0.01MF		50V
C125	1-101-004-00	CERAMIC	0.01MF		50V
C126	1-101-004-00	CERAMIC	0.01MF		50V
C200	1-124-034-51	ELECT	33MF	20%	16V
C201	1-126-967-11	ELECT	47MF	20%	25V
C202	1-124-034-51	ELECT	33MF	20%	16V
C203	1-124-034-51	ELECT	33MF	20%	16V
C204	1-101-004-00	CERAMIC	0.01MF		50V
C220	1-101-004-00	CERAMIC	0.01MF		50V
C221	1-101-004-00	CERAMIC	0.01MF		50V
C222	1-101-004-00	CERAMIC	0.01MF		50V
C224	1-101-004-00	CERAMIC	0.01MF		50V
C225	1-101-004-00	CERAMIC	0.01MF		50V
C226	1-101-004-00	CERAMIC	0.01MF		50V
C227	1-124-916-11	ELECT	22MF	20%	25V
C250	1-124-034-51	ELECT	33MF	20%	16V
C251	1-101-004-00	CERAMIC	0.01MF		50V
C301	1-101-004-00	CERAMIC	0.01MF		50V
C302	1-101-004-00	CERAMIC	0.01MF		50V
C303	1-101-004-00	CERAMIC	0.01MF		50V
C304	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C312	1-101-004-00	CERAMIC	0.01MF		50V
C313	1-101-004-00	CERAMIC	0.01MF		50V
C316	1-102-935-00	CERAMIC	2PF	0.25PF	50V
C350	1-102-963-00	CERAMIC	33PF	5%	50V

<TRIMMER>

CV1	1-141-171-00	CAP, TRIMMER 15P
CV2	1-141-179-12	CAP, VAR, TRIMMER

<DIODE>

D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D4	8-719-109-63	DIODE RD3.0ESB2
D5	8-719-110-13	DIODE RD9.1ESB2
D6	8-719-911-19	DIODE 1SS119
D10	8-719-920-95	DIODE 1T25-0
D11	8-719-911-19	DIODE 1SS119
D12	8-719-110-31	DIODE RD12ESB2
D13	8-719-110-31	DIODE RD12ESB2
D16	8-719-911-19	DIODE 1SS119
D201	8-719-911-19	DIODE 1SS119
D202	8-719-911-19	DIODE 1SS119

REF.NO.	PART NO.	DESCRIPTION	REMARK

<IC>

IC1	8-759-204-21	IC TA7193P
IC2	8-759-800-81	IC LA7016
IC3	8-759-246-15	IC TL8608AP
	*1-526-654-21	SOCKET, IC (DP) 16P; IC3
IC4	8-759-246-15	IC TL8608AP
	*1-526-654-21	SOCKET, IC (DP) 16P; IC4
IC5	8-759-140-53	IC UPD4053BC
IC6	8-759-800-81	IC LA7016
IC7	8-759-745-58	IC NJM4558D
IC8	8-759-745-58	IC NJM4558D

<COIL>

L1	1-408-533-00	COIL, VARIABLE	
L2	1-408-532-00	COIL, VARIABLE	
L3	9-910-999-31	COIL (VARIABLE)	
L4	1-408-421-00	INDUCTOR	100UH
L5	1-408-429-00	INDUCTOR	470UH
L6	1-408-429-00	INDUCTOR	470UH
L8	1-408-421-00	INDUCTOR	100UH
L101	1-408-421-00	INDUCTOR	100UH
L102	1-408-421-00	INDUCTOR	100UH

<TRANSISTOR>

Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q4	8-729-800-10	TRANSISTOR 2SC3068
Q5	8-729-800-10	TRANSISTOR 2SC3068
Q6	8-729-384-48	TRANSISTOR 2SA844-E
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q8	8-729-384-48	TRANSISTOR 2SA844-E
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q10	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q11	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q12	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q13	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q14	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q15	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q16	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q17	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q18	8-729-600-19	TRANSISTOR 2SK381-A
Q20	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q23	8-729-384-48	TRANSISTOR 2SA844-E
Q24	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q25	8-729-800-10	TRANSISTOR 2SC3068
Q26	8-729-600-19	TRANSISTOR 2SK381-A
Q28	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q29	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q30	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q31	8-729-384-48	TRANSISTOR 2SA844-E
Q32	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q33	8-729-800-10	TRANSISTOR 2SC3068
Q34	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q35	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q36	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q38	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q101	8-729-140-97	TRANSISTOR 2SB734-34
Q102	8-729-320-62	TRANSISTOR 2SD789-34

BD

REF.NO.	PART NO.	DESCRIPTION				REMARK
Q103	8-729-900-63	TRANSISTOR DTA124ES				
Q104	8-729-900-63	TRANSISTOR DTA124ES				
		<RESISTOR>				
R1	1-249-428-11	CARBON	8.2K	5%	1/4W	
R2	1-249-429-11	CARBON	10K	5%	1/4W	
R3	1-249-422-11	CARBON	2.7K	5%	1/4W	
R4	1-215-425-00	METAL	1.5K	1%	1/4W	
R5	1-215-395-00	METAL	82	1%	1/4W	
R6	1-215-421-00	METAL	1K	1%	1/4W	
R7	1-215-421-00	METAL	1K	1%	1/4W	
R8	1-215-423-00	METAL	1.2K	1%	1/4W	
R9	1-215-421-00	METAL	1K	1%	1/4W	
R10	1-215-421-00	METAL	1K	1%	1/4W	
R11	1-215-391-00	METAL	56	1%	1/4W	
R12	1-215-427-00	METAL	1.8K	1%	1/4W	
R13	1-249-425-11	CARBON	4.7K	5%	1/4W	
R14	1-249-429-11	CARBON	10K	5%	1/4W	
R15	1-249-429-11	CARBON	10K	5%	1/4W	
R17	1-249-433-11	CARBON	22K	5%	1/4W	
R18	1-215-425-00	METAL	1.5K	1%	1/4W	
R19	1-215-425-00	METAL	1.5K	1%	1/4W	
R20	1-215-425-00	METAL	1.5K	1%	1/4W	
R21	1-215-425-00	METAL	1.5K	1%	1/4W	
R22	1-249-405-11	CARBON	100	5%	1/4W	
R23	1-215-441-00	METAL	6.8K	1%	1/4W	
R24	1-215-469-91	METAL	100K	1%	1/4W	
R25	1-249-427-11	CARBON	6.8K	5%	1/4W	
R26	1-249-415-11	CARBON	680	5%	1/4W	
R27	1-249-415-11	CARBON	680	5%	1/4W	
R28	1-249-420-11	CARBON	1.8K	5%	1/4W	
R29	1-249-422-11	CARBON	2.7K	5%	1/4W	
R30	1-249-405-11	CARBON	100	5%	1/4W	
R31	1-247-903-00	CARBON	1M	5%	1/4W	
R32	1-249-429-11	CARBON	10K	5%	1/4W	
R34	1-215-407-00	METAL	270	1%	1/4W	
R35	1-215-407-00	METAL	270	1%	1/4W	
R36	1-215-413-00	METAL	470	1%	1/4W	
R37	1-215-443-00	METAL	8.2K	1%	1/4W	
R38	1-249-441-11	CARBON	100K	5%	1/4W	
R39	1-215-425-00	METAL	1.5K	1%	1/4W	
R40	1-215-421-00	METAL	1K	1%	1/4W	
R41	1-215-429-00	METAL	2.2K	1%	1/4W	
R42	1-215-445-00	METAL	10K	1%	1/4W	
R43	1-215-421-00	METAL	1K	1%	1/4W	
R44	1-249-433-11	CARBON	22K	5%	1/4W	
R45	1-249-429-11	CARBON	10K	5%	1/4W	
R46	1-249-429-11	CARBON	10K	5%	1/4W	
R47	1-249-441-11	CARBON	100K	5%	1/4W	
R48	1-249-425-11	CARBON	4.7K	5%	1/4W	
R54	1-249-422-11	CARBON	2.7K	5%	1/4W	
R55	1-215-418-00	METAL	750	1%	1/4W	
R56	1-215-420-00	METAL	910	1%	1/4W	
R57	1-249-415-11	CARBON	680	5%	1/4W	
R58	1-249-422-11	CARBON	2.7K	5%	1/4W	
R59	1-249-422-11	CARBON	2.7K	5%	1/4W	
R60	1-215-418-00	METAL	750	1%	1/4W	
R61	1-215-420-00	METAL	910	1%	1/4W	
R62	1-249-415-11	CARBON	680	5%	1/4W	
R63	1-249-422-11	CARBON	2.7K	5%	1/4W	
R64	1-215-477-00	METAL	220K	1%	1/4W	
R65	1-215-435-00	METAL	3.9K	1%	1/4W	
R66	1-249-405-11	CARBON	100	5%	1/4W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R70	1-247-903-00	CARBON	1M	5%	1/4W	
R71	1-249-429-11	CARBON	10K	5%	1/4W	
R72	1-249-429-11	CARBON	10K	5%	1/4W	
R73	1-249-429-11	CARBON	10K	5%	1/4W	
R74	1-249-417-11	CARBON	1K	5%	1/4W	
R75	1-249-427-11	CARBON	6.8K	5%	1/4W	
R76	1-249-427-11	CARBON	6.8K	5%	1/4W	
R77	1-249-425-11	CARBON	4.7K	5%	1/4W	
R78	1-215-424-00	METAL	1.3K	1%	1/4W	
R79	1-215-419-00	METAL	820	1%	1/4W	
R80	1-215-425-00	METAL	1.5K	1%	1/4W	
R81	1-249-422-11	CARBON	2.7K	5%	1/4W	
R82	1-249-425-11	CARBON	4.7K	5%	1/4W	
R83	1-249-435-11	CARBON	33K	5%	1/4W	
R84	1-249-435-11	CARBON	33K	5%	1/4W	
R85	1-247-903-00	CARBON	1M	5%	1/4W	
R86	1-249-429-11	CARBON	10K	5%	1/4W	
R87	1-249-429-11	CARBON	10K	5%	1/4W	
R88	1-249-429-11	CARBON	10K	5%	1/4W	
R89	1-249-417-11	CARBON	1K	5%	1/4W	
R90	1-249-427-11	CARBON	6.8K	5%	1/4W	
R91	1-249-427-11	CARBON	6.8K	5%	1/4W	
R92	1-249-425-11	CARBON	4.7K	5%	1/4W	
R93	1-215-424-00	METAL	1.3K	1%	1/4W	
R94	1-215-419-00	METAL	820	1%	1/4W	
R95	1-215-425-00	METAL	1.5K	1%	1/4W	
R96	1-249-422-11	CARBON	2.7K	5%	1/4W	
R97	1-249-425-11	CARBON	4.7K	5%	1/4W	
R98	1-249-435-11	CARBON	33K	5%	1/4W	
R99	1-249-435-11	CARBON	33K	5%	1/4W	
R100	1-215-438-00	METAL	5.1K	1%	1/4W	
R101	1-215-438-00	METAL	5.1K	1%	1/4W	
R102	1-215-438-00	METAL	5.1K	1%	1/4W	
R103	1-215-438-00	METAL	5.1K	1%	1/4W	
R104	1-249-437-11	CARBON	47K	5%	1/4W	
R105	1-249-438-11	CARBON	56K	5%	1/4W	
R106	1-249-417-11	CARBON	1K	5%	1/4W	
R107	1-249-417-11	CARBON	1K	5%	1/4W	
R108	1-249-417-11	CARBON	1K	5%	1/4W	
R109	1-249-417-11	CARBON	1K	5%	1/4W	
R110	1-249-417-11	CARBON	1K	5%	1/4W	
R115	1-215-438-00	METAL	5.1K	1%	1/4W	
R116	1-215-438-00	METAL	5.1K	1%	1/4W	
R120	1-249-429-11	CARBON	10K	5%	1/4W	
R121	1-249-429-11	CARBON	10K	5%	1/4W	
R130	1-215-477-00	METAL	220K	1%	1/4W	
R150	1-249-441-11	CARBON	100K	5%	1/4W	
R201	1-249-423-11	CARBON	3.3K	5%	1/4W	
R202	1-249-423-11	CARBON	3.3K	5%	1/4W	
R203	1-249-422-11	CARBON	2.7K	5%	1/4W	
R204	1-249-423-11	CARBON	3.3K	5%	1/4W	
R220	1-249-441-11	CARBON	100K	5%	1/4W	
R221	1-249-433-11	CARBON	22K	5%	1/4W	
R222	1-249-433-11	CARBON	22K	5%	1/4W	
R250	1-215-415-00	METAL	560	1%	1/4W	
R251	1-215-415-00	METAL	560	1%	1/4W	
R252	1-215-421-00	METAL	1K	1%	1/4W	
R254	1-249-429-11	CARBON	10K	5%	1/4W	
R255	1-249-441-11	CARBON	100K	5%	1/4W	
R259	1-215-421-00	METAL	1K	1%	1/4W	
R301	1-215-469-91	METAL	100K	1%	1/4W	
R302	1-215-491-00	METAL	820K	1%	1/4W	
R303	1-249-418-11	CARBON	1.2K	5%	1/4W	

BD BG

REF.NO.	PART NO.	DESCRIPTION				REMARK
R305	1-249-431-11	CARBON	15K	5%	1/4W	
R306	1-249-428-11	CARBON	8.2K	5%	1/4W	
R307	1-249-417-11	CARBON	1K	5%	1/4W	
R308	1-249-417-11	CARBON	1K	5%	1/4W	
R310	1-249-422-11	CARBON	2.7K	5%	1/4W	
R314	1-215-417-00	METAL	680	1%	1/4W	
R315	1-249-422-11	CARBON	2.7K	5%	1/4W	
R316	1-249-413-11	CARBON	470	5%	1/4W	
R317	1-249-413-11	CARBON	470	5%	1/4W	
R320	1-215-472-00	METAL	130K	1%	1/4W	
R353	1-249-432-11	CARBON	18K	5%	1/4W	
R354	1-249-432-11	CARBON	18K	5%	1/4W	
R400	1-215-429-00	METAL	2.2K	1%	1/4W	
		<VARIABLE RESISTOR>				
RV1	1-237-515-21	RES, ADJ, CERMET 1K				
RV2	1-237-499-21	RES, ADJ, CERMET 500				
RV3	1-237-501-21	RES, ADJ, CERMET 2K				
RV4	1-237-501-21	RES, ADJ, CERMET 2K				
RV5	1-237-517-21	RES, ADJ, CERMET 5K				
RV6	1-237-517-21	RES, ADJ, CERMET 5K				
RV7	1-237-504-21	RES, ADJ, CERMET 20K				
RV8	1-237-504-21	RES, ADJ, CERMET 20K				
RV9	1-237-517-21	RES, ADJ, CERMET 5K				
RV10	1-237-517-21	RES, ADJ, CERMET 5K				
		<CRYSTAL>				
X1	1-567-504-11	OSCILLATOR, CRYSTAL				
X2	1-567-409-11	VIBRATOR, CRYSTAL				
**********						
	*A-1135-537-A	BG BOARD, COMPLETE				
		**********				
	*4-353-708-00	HOOK, FINGER				
		<CAPACITOR>				
C1	1-124-910-11	ELECT	47MF	20%	16V	
C2	1-124-910-11	ELECT	47MF	20%	16V	
C3	1-126-964-11	ELECT	10MF	20%	16V	
C4	1-124-910-11	ELECT	47MF	20%	16V	
C7	1-101-004-00	CERAMIC	0.01MF		50V	
C8	1-101-004-00	CERAMIC	0.01MF		50V	
C9	1-101-004-00	CERAMIC	0.01MF		50V	
C10	1-102-935-00	CERAMIC	2PF	0.25PF	50V	
C12	1-101-004-00	CERAMIC	0.01MF		50V	
C16	1-101-004-00	CERAMIC	0.01MF		50V	
C20	1-124-903-11	ELECT	1MF	20%	50V	
C22	1-101-004-00	CERAMIC	0.01MF		50V	
C26	1-101-004-00	CERAMIC	0.01MF		50V	
C32	1-101-004-00	CERAMIC	0.01MF		50V	
C33	1-136-165-00	FILM	0.1MF	5%	50V	
C34	1-136-165-00	FILM	0.1MF	5%	50V	
C35	1-136-165-00	FILM	0.1MF	5%	50V	
C53	1-124-915-11	ELECT	10MF	20%	25V	
C54	1-101-004-00	CERAMIC	0.01MF		50V	
C101	1-126-103-11	ELECT	470MF	20%	16V	
C102	1-126-101-11	ELECT	100MF	20%	16V	
C103	1-124-119-00	ELECT	330MF	20%	16V	
C105	1-124-119-00	ELECT	330MF	20%	16V	
C106	1-126-101-11	ELECT	100MF	20%	16V	
C111	1-126-964-11	ELECT	10MF	20%	16V	

REF.NO.	PART NO.	DESCRIPTION			REMARK
C112	1-101-004-00	CERAMIC	0.01MF		50V
C113	1-101-004-00	CERAMIC	0.01MF		50V
C114	1-101-004-00	CERAMIC	0.01MF		50V
C115	1-101-004-00	CERAMIC	0.01MF		50V
C116	1-101-004-00	CERAMIC	0.01MF		50V
C117	1-101-004-00	CERAMIC	0.01MF		50V
C131	1-126-103-11	ELECT	470MF	20%	16V
C132	1-126-101-11	ELECT	100MF	20%	16V
C133	1-124-119-00	ELECT	330MF	20%	16V
C135	1-124-119-00	ELECT	330MF	20%	16V
C136	1-126-101-11	ELECT	100MF	20%	16V
C141	1-101-004-00	CERAMIC	0.01MF		50V
C142	1-101-004-00	CERAMIC	0.01MF		50V
C143	1-101-004-00	CERAMIC	0.01MF		50V
C144	1-101-004-00	CERAMIC	0.01MF		50V
C145	1-101-004-00	CERAMIC	0.01MF		50V
C146	1-101-004-00	CERAMIC	0.01MF		50V
C147	1-101-004-00	CERAMIC	0.01MF		50V
		<COMPOSITION CIRCUIT BLOCK>			
CP11	1-232-726-11	COMPOSITION CIRCUIT BLOCK			
CP12	1-232-728-11	COMPOSITION CIRCUIT BLOCK			
CP13	1-232-726-11	COMPOSITION CIRCUIT BLOCK			
CP14	1-233-018-11	COMPOSITION CIRCUIT BLOCK			
CP15	1-233-019-11	COMPOSITION CIRCUIT BLOCK			
CP16	1-233-031-11	COMPOSITION CIRCUIT BLOCK			
CP17	1-233-032-11	COMPOSITION CIRCUIT BLOCK			
CP18	1-233-013-11	COMPOSITION CIRCUIT BLOCK			
CP19	1-233-017-11	COMPOSITION CIRCUIT BLOCK			
CP20	1-232-752-11	COMPOSITION CIRCUIT BLOCK			
CP21	1-232-726-11	COMPOSITION CIRCUIT BLOCK			
CP22	1-232-728-11	COMPOSITION CIRCUIT BLOCK			
CP23	1-232-726-11	COMPOSITION CIRCUIT BLOCK			
CP25	1-232-730-11	COMPOSITION CIRCUIT BLOCK			
CP26	1-232-730-11	COMPOSITION CIRCUIT BLOCK			
CP27	1-231-765-00	COMPOSITION CIRCUIT BLOCK			
CP28	1-232-752-11	COMPOSITION CIRCUIT BLOCK			
CP29	1-232-728-11	COMPOSITION CIRCUIT BLOCK			
CP30	1-232-728-11	COMPOSITION CIRCUIT BLOCK			
CP31	1-232-734-11	COMPOSITION CIRCUIT BLOCK			
CP32	1-232-728-11	COMPOSITION CIRCUIT BLOCK			
CP33	1-232-738-11	COMPOSITION CIRCUIT BLOCK			
CP41	1-233-014-11	COMPOSITION CIRCUIT BLOCK			
CP42	1-233-014-11	COMPOSITION CIRCUIT BLOCK			
		<TRIMMER>			
CV2	1-141-181-11	CAP, TRIMMER			
CV3	1-141-171-00	CAP, TRIMMER 20P			
		<DIODE>			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			
D5	8-719-911-19	DIODE 1SS119			
D6	8-719-911-19	DIODE 1SS119			
D7	8-719-911-19	DIODE 1SS119			
D16	8-719-911-19	DIODE 1SS119			
D17	8-719-911-19	DIODE 1SS119			
		<DELAY LINE>			

BG

REF.NO.	PART NO.	DESCRIPTION	REMARK
DL1	1-415-477-11	DELAY LINE	
DL2	1-415-458-11	DELAY LINE	
DL3	1-406-769-11	DELAY LINE	
DL4	1-406-769-11	DELAY LINE	
		<IC>	
IC1	8-759-800-81	IC LA7016	
IC2	8-766-001-49	TRANSISTOR TX-429M	
IC3	8-759-745-58	IC NJM4558D	
IC4	8-757-182-14	IC CX-718D-1	
IC5	8-759-140-53	IC UPD4053BC	
IC6	8-759-140-53	IC UPD4053BC	
IC7	8-759-503-91	IC TL082ACP	
		<COIL>	
L2	1-408-408-00	INDUCTOR 8.2UH	
		<TRANSISTOR>	
Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q10	8-729-384-48	TRANSISTOR 2SA844-E	
Q11	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q12	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q13	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q14	8-729-800-10	TRANSISTOR 2SC3068	
Q21	8-729-384-48	TRANSISTOR 2SA844-E	
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q23	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q24	8-729-600-19	TRANSISTOR 2SK381-A	
Q25	8-729-384-48	TRANSISTOR 2SA844-E	
Q26	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q27	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q28	8-729-600-19	TRANSISTOR 2SK381-A	
Q29	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q30	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q31	8-729-384-48	TRANSISTOR 2SA844-E	
Q32	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q33	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q34	8-729-600-19	TRANSISTOR 2SK381-A	
Q35	8-729-384-48	TRANSISTOR 2SA844-E	
Q36	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q37	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q38	8-729-600-19	TRANSISTOR 2SK381-A	
Q39	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q40	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q41	8-729-384-48	TRANSISTOR 2SA844-E	
Q42	8-729-384-48	TRANSISTOR 2SA844-E	
Q43	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q44	8-729-384-48	TRANSISTOR 2SA844-E	
Q45	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q49	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q50	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q71	8-729-384-48	TRANSISTOR 2SA844-E	
Q72	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q73	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q74	8-729-384-48	TRANSISTOR 2SA844-E	
Q75	8-729-800-10	TRANSISTOR 2SC3068	
Q76	8-729-900-63	TRANSISTOR DTA124ES	
Q77	8-729-900-63	TRANSISTOR DTA124ES	
Q81	8-729-384-48	TRANSISTOR 2SA844-E	
Q82	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q83	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q84	8-729-384-48	TRANSISTOR 2SA844-E	
Q85	8-729-800-10	TRANSISTOR 2SC3068	
		<RESISTOR>	
R1	1-249-405-11	CARBON 100 5% 1/4W	
R2	1-215-396-00	METAL 91 1% 1/4W	
R3	1-215-431-00	METAL 2.7K 1% 1/4W	
R4	1-249-419-11	CARBON 1.5K 5% 1/4W	
R6	1-249-405-11	CARBON 100 5% 1/4W	
R7	1-249-405-11	CARBON 100 5% 1/4W	
R8	1-249-429-11	CARBON 10K 5% 1/4W	
R10	1-247-830-11	CARBON 910 5% 1/4W	
R11	1-249-417-11	CARBON 1K 5% 1/4W	
R12	1-249-417-11	CARBON 1K 5% 1/4W	
R13	1-215-462-00	METAL 51K 1% 1/4W	
R14	1-249-426-11	CARBON 5.6K 5% 1/4W	
R15	1-247-903-00	CARBON 1M 5% 1/4W	
R16	1-215-477-00	METAL 220K 1% 1/4W	
R17	1-249-429-11	CARBON 10K 5% 1/4W	
R18	1-249-429-11	CARBON 10K 5% 1/4W	
R19	1-249-417-11	CARBON 1K 5% 1/4W	
R20	1-215-421-00	METAL 1K 1% 1/4W	
R21	1-215-421-00	METAL 1K 1% 1/4W	
R22	1-249-441-11	CARBON 100K 5% 1/4W	
R23	1-215-409-00	METAL 330 1% 1/4W	
R24	1-215-380-00	METAL 20 1% 1/4W	
R25	1-215-380-00	METAL 20 1% 1/4W	
R26	1-215-409-00	METAL 330 1% 1/4W	
R27	1-249-429-11	CARBON 10K 5% 1/4W	
R28	1-249-417-11	CARBON 1K 5% 1/4W	
R29	1-215-418-00	METAL 750 1% 1/4W	
R30	1-249-422-11	CARBON 2.7K 5% 1/4W	
R31	1-249-405-11	CARBON 100 5% 1/4W	
R32	1-249-420-11	CARBON 1.8K 5% 1/4W	
R33	1-249-429-11	CARBON 10K 5% 1/4W	
R34	1-249-428-11	CARBON 8.2K 5% 1/4W	
R35	1-249-417-11	CARBON 1K 5% 1/4W	
R36	1-249-422-11	CARBON 2.7K 5% 1/4W	
R37	1-249-405-11	CARBON 100 5% 1/4W	
R40	1-249-425-11	CARBON 4.7K 5% 1/4W	
R41	1-249-422-11	CARBON 2.7K 5% 1/4W	
R42	1-249-417-11	CARBON 1K 5% 1/4W	
R43	1-249-417-11	CARBON 1K 5% 1/4W	
R44	1-249-431-11	CARBON 15K 5% 1/4W	
R45	1-249-423-11	CARBON 3.3K 5% 1/4W	
R46	1-249-417-11	CARBON 1K 5% 1/4W	
R47	1-249-423-11	CARBON 3.3K 5% 1/4W	
R48	1-249-422-11	CARBON 2.7K 5% 1/4W	
R49	1-249-405-11	CARBON 100 5% 1/4W	
R50	1-249-422-11	CARBON 2.7K 5% 1/4W	
R51	1-247-903-00	CARBON 1M 5% 1/4W	
R52	1-247-866-11	CARBON 30K 5% 1/4W	
R53	1-215-445-00	METAL 10K 1% 1/4W	
R54	1-249-420-11	CARBON 1.8K 5% 1/4W	
R55	1-249-422-11	CARBON 2.7K 5% 1/4W	
R56	1-249-405-11	CARBON 100 5% 1/4W	
R57	1-249-422-11	CARBON 2.7K 5% 1/4W	
R58	1-249-422-11	CARBON 2.7K 5% 1/4W	
R59	1-249-422-11	CARBON 2.7K 5% 1/4W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R61	1-249-422-11	CARBON	2.7K	5%	1/4W	
R62	1-249-417-11	CARBON	1K	5%	1/4W	
R63	1-249-417-11	CARBON	1K	5%	1/4W	
R64	1-249-431-11	CARBON	15K	5%	1/4W	
R65	1-249-423-11	CARBON	3.3K	5%	1/4W	
R66	1-249-417-11	CARBON	1K	5%	1/4W	
R67	1-249-423-11	CARBON	3.3K	5%	1/4W	
R68	1-249-422-11	CARBON	2.7K	5%	1/4W	
R69	1-249-405-11	CARBON	100	5%	1/4W	
R70	1-249-422-11	CARBON	2.7K	5%	1/4W	
R71	1-247-903-00	CARBON	1M	5%	1/4W	
R72	1-247-866-11	CARBON	30K	5%	1/4W	
R73	1-215-445-00	METAL	10K	1%	1/4W	
R74	1-249-420-11	CARBON	1.8K	5%	1/4W	
R75	1-249-422-11	CARBON	2.7K	5%	1/4W	
R76	1-249-405-11	CARBON	100	5%	1/4W	
R77	1-249-422-11	CARBON	2.7K	5%	1/4W	
R78	1-249-422-11	CARBON	2.7K	5%	1/4W	
R79	1-249-422-11	CARBON	2.7K	5%	1/4W	
R80	1-249-405-11	CARBON	100	5%	1/4W	
R81	1-249-422-11	CARBON	2.7K	5%	1/4W	
R82	1-247-903-00	CARBON	1M	5%	1/4W	
R83	1-249-420-11	CARBON	1.8K	5%	1/4W	
R84	1-249-405-11	CARBON	100	5%	1/4W	
R85	1-247-866-11	CARBON	30K	5%	1/4W	
R86	1-215-445-00	METAL	10K	1%	1/4W	
R87	1-249-422-11	CARBON	2.7K	5%	1/4W	
R88	1-215-430-00	METAL	2.4K	1%	1/4W	
R89	1-215-443-00	METAL	8.2K	1%	1/4W	
R90	1-249-430-11	CARBON	12K	5%	1/4W	
R91	1-249-405-11	CARBON	100	5%	1/4W	
R92	1-247-830-11	CARBON	910	5%	1/4W	
R93	1-215-421-00	METAL	1K	1%	1/4W	
R94	1-249-422-11	CARBON	2.7K	5%	1/4W	
R98	1-249-422-11	CARBON	2.7K	5%	1/4W	
R99	1-249-422-11	CARBON	2.7K	5%	1/4W	
R161	1-215-438-00	METAL	5.1K	1%	1/4W	
R162	1-249-431-11	CARBON	15K	5%	1/4W	
R163	1-249-417-11	CARBON	1K	5%	1/4W	
R164	1-215-435-00	METAL	3.9K	1%	1/4W	
R165	1-249-422-11	CARBON	2.7K	5%	1/4W	
R166	1-249-422-11	CARBON	2.7K	5%	1/4W	
R167	1-215-409-00	METAL	330	1%	1/4W	
R168	1-215-412-00	METAL	430	1%	1/4W	
R169	1-215-427-00	METAL	1.8K	1%	1/4W	
R170	1-249-425-11	CARBON	4.7K	5%	1/4W	
R171	1-215-436-00	METAL	4.3K	1%	1/4W	
R172	1-249-431-11	CARBON	15K	5%	1/4W	
R173	1-249-417-11	CARBON	1K	5%	1/4W	
R174	1-215-435-00	METAL	3.9K	1%	1/4W	
R175	1-249-422-11	CARBON	2.7K	5%	1/4W	
R176	1-249-422-11	CARBON	2.7K	5%	1/4W	
R177	1-215-409-00	METAL	330	1%	1/4W	
R178	1-215-414-00	METAL	510	1%	1/4W	
R179	1-215-422-00	METAL	1.1K	1%	1/4W	
R180	1-249-425-11	CARBON	4.7K	5%	1/4W	
R181	1-215-380-00	METAL	20	1%	1/4W	
R182	1-215-380-00	METAL	20	1%	1/4W	
R183	1-249-433-11	CARBON	22K	5%	1/4W	
R184	1-249-425-11	CARBON	4.7K	5%	1/4W	
R201	1-249-437-11	CARBON	47K	5%	1/4W	
R202	1-249-429-11	CARBON	10K	5%	1/4W	
R203	1-249-435-11	CARBON	33K	5%	1/4W	
R204	1-247-872-11	CARBON	51K	5%	1/4W	

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<VARIABLE RESISTOR>	
RV1	1-237-514-21	RES, ADJ, CERMET 500 (FREQ.CHARACTER)	
RV2	1-237-508-21	RES, ADJ, CERMET 500K (APT PRESET)	
RV3	1-237-498-21	RES, ADJ, CERMET 200 (GAIN)	
RV4	1-237-500-21	RES, ADJ, CERMET 1K (RATION)	
RV5	1-237-500-21	RES, ADJ, CERMET 1K (GAIN)	
RV21	1-237-517-21	RES, ADJ, CERMET 5K (R IN/CR-Y)	
RV22	1-237-517-21	RES, ADJ, CERMET 5K (B IN/CB-Y)	
		<SWITCH>	
S1	1-570-857-11	SWITCH, SLIDE	
		**********	
	*A-1135-359-A	BH BOARD, COMPLETE **********	
	*4-353-708-00	HOOK, FINGER	
		<CAPACITOR>	
C1	1-124-034-51	ELECT 33MF 20% 16V	
C2	1-124-034-51	ELECT 33MF 20% 16V	
C3	1-124-034-51	ELECT 33MF 20% 16V	
C4	1-124-034-51	ELECT 33MF 20% 16V	
C5	1-124-034-51	ELECT 33MF 20% 16V	
C6	1-124-034-51	ELECT 33MF 20% 16V	
C7	1-124-034-51	ELECT 33MF 20% 16V	
C8	1-124-034-51	ELECT 33MF 20% 16V	
C9	1-124-034-51	ELECT 33MF 20% 16V	
C10	1-124-034-51	ELECT 33MF 20% 16V	
C11	1-124-034-51	ELECT 33MF 20% 16V	
C12	1-124-034-51	ELECT 33MF 20% 16V	
C13	1-124-034-51	ELECT 33MF 20% 16V	
C14	1-124-034-51	ELECT 33MF 20% 16V	
C15	1-101-004-00	CERAMIC 0.01MF 50V	
C16	1-101-004-00	CERAMIC 0.01MF 50V	
C17	1-101-004-00	CERAMIC 0.01MF 50V	
C18	1-101-004-00	CERAMIC 0.01MF 50V	
C20	1-123-382-00	ELECT 3.3MF 20% 50V	
C21	1-126-964-11	ELECT 10MF 20% 16V	
C22	1-126-964-11	ELECT 10MF 20% 16V	
C23	1-126-964-11	ELECT 10MF 20% 16V	
C24	1-126-964-11	ELECT 10MF 20% 16V	
C26	1-101-004-00	CERAMIC 0.01MF 50V	
C41	1-124-119-00	ELECT 330MF 20% 16V	
C42	1-124-119-00	ELECT 330MF 20% 16V	
C43	1-124-119-00	ELECT 330MF 20% 16V	
C44	1-126-964-11	ELECT 10MF 20% 16V	
C45	1-126-964-11	ELECT 10MF 20% 16V	
C50	1-126-964-11	ELECT 10MF 20% 16V	
C51	1-101-004-00	CERAMIC 0.01MF 50V	
C52	1-101-004-00	CERAMIC 0.01MF 50V	
C53	1-101-004-00	CERAMIC 0.01MF 50V	
C54	1-101-004-00	CERAMIC 0.01MF 50V	
C55	1-101-004-00	CERAMIC 0.01MF 50V	
C71	1-124-119-00	ELECT 330MF 20% 16V	
C72	1-124-119-00	ELECT 330MF 20% 16V	
C73	1-124-119-00	ELECT 330MF 20% 16V	
C74	1-126-964-11	ELECT 10MF 20% 16V	
C80	1-126-964-11	ELECT 10MF 20% 16V	

BH

REF.NO.	PART NO.	DESCRIPTION			REMARK
C81	1-101-004-00	CERAMIC	0.01MF		50V
C82	1-101-004-00	CERAMIC	0.01MF		50V
C83	1-101-004-00	CERAMIC	0.01MF		50V
C84	1-101-004-00	CERAMIC	0.01MF		50V
C85	1-101-004-00	CERAMIC	0.01MF		50V
C86	1-101-004-00	CERAMIC	0.01MF		50V
C101	1-161-021-11	CERAMIC	0.047MF	10%	25V
C102	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C103	1-102-959-00	CERAMIC	22PF	5%	50V
C104	1-126-964-11	ELECT	10MF	20%	16V
C105	1-161-021-11	CERAMIC	0.047MF	10%	25V
C106	1-101-004-00	CERAMIC	0.01MF		50V
C107	1-161-021-11	CERAMIC	0.047MF	10%	25V
C108	1-101-004-00	CERAMIC	0.01MF		50V
C109	1-101-004-00	CERAMIC	0.01MF		50V
C110	1-101-880-00	CERAMIC	47PF	5%	50V
C201	1-161-021-11	CERAMIC	0.047MF	10%	25V
C202	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C203	1-102-959-00	CERAMIC	22PF	5%	50V
C204	1-126-964-11	ELECT	10MF	20%	16V
C205	1-161-021-11	CERAMIC	0.047MF	10%	25V
C206	1-101-004-00	CERAMIC	0.01MF		50V
C207	1-161-021-11	CERAMIC	0.047MF	10%	25V
C208	1-101-004-00	CERAMIC	0.01MF		50V
C209	1-101-004-00	CERAMIC	0.01MF		50V
C210	1-101-880-00	CERAMIC	47PF	5%	50V
C301	1-161-021-11	CERAMIC	0.047MF	10%	25V
C302	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C303	1-102-959-00	CERAMIC	22PF	5%	50V
C304	1-126-964-11	ELECT	10MF	20%	16V
C305	1-161-021-11	CERAMIC	0.047MF	10%	25V
C306	1-101-004-00	CERAMIC	0.01MF		50V
C307	1-161-021-11	CERAMIC	0.047MF	10%	25V
C308	1-101-004-00	CERAMIC	0.01MF		50V
C309	1-101-004-00	CERAMIC	0.01MF		50V
C310	1-101-880-00	CERAMIC	47PF	5%	50V

<COMPOSITION CIRCUIT BLOCK>

CP1	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP2	1-232-727-11	COMPOSITION CIRCUIT BLOCK	
CP3	1-233-012-11	COMPOSITION CIRCUIT BLOCK	
CP5	1-233-012-11	COMPOSITION CIRCUIT BLOCK	
CP7	1-233-012-11	COMPOSITION CIRCUIT BLOCK	
CP9	1-232-735-11	COMPOSITION CIRCUIT BLOCK	
CP10	1-231-760-00	COMPOSITION CIRCUIT BLOCK	
CP12	1-232-735-11	COMPOSITION CIRCUIT BLOCK	
CP13	1-231-760-00	COMPOSITION CIRCUIT BLOCK	
CP15	1-232-735-11	COMPOSITION CIRCUIT BLOCK	
CP16	1-232-749-11	COMPOSITION CIRCUIT BLOCK	
CP17	1-232-096-00	COMPOSITION CIRCUIT BLOCK	
CP18	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP19	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP20	1-232-736-11	COMPOSITION CIRCUIT BLOCK	
CP21	1-232-736-11	COMPOSITION CIRCUIT BLOCK	
CP22	1-232-745-11	COMPOSITION CIRCUIT BLOCK	
CP23	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP24	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP25	1-233-144-11	COMPOSITION CIRCUIT BLOCK	
CP26	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP27	1-232-177-00	COMPOSITION CIRCUIT BLOCK	
CP28	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP29	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP30	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP31	1-233-011-11	COMPOSITION CIRCUIT BLOCK	
CP32	1-232-737-11	COMPOSITION CIRCUIT BLOCK	
CP33	1-231-938-00	COMPOSITION CIRCUIT BLOCK	
CP101	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP102	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP103	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP104	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP201	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP202	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP203	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP204	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP301	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP302	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP303	1-232-726-11	COMPOSITION CIRCUIT BLOCK	
CP304	1-232-726-11	COMPOSITION CIRCUIT BLOCK	

<DIODE>

D1	8-719-911-19	DIODE 1SS119
D101	8-719-911-19	DIODE 1SS119
D102	8-719-911-19	DIODE 1SS119
D201	8-719-911-19	DIODE 1SS119
D202	8-719-911-19	DIODE 1SS119
D301	8-719-911-19	DIODE 1SS119
D302	8-719-911-19	DIODE 1SS119

<IC>

IC1	8-759-140-53	IC UPD4053BC
IC2	8-759-140-53	IC UPD4053BC
IC3	8-759-140-53	IC UPD4053BC
IC4	8-759-140-53	IC UPD4053BC
IC5	8-759-700-08	IC NJM4558S
IC6	8-759-700-08	IC NJM4558S
IC7	8-759-800-81	IC LA7016
IC8	8-759-800-81	IC LA7016
IC9	8-759-140-53	IC UPD4053BC
IC10	8-759-140-53	IC UPD4053BC
IC11	8-759-240-81	IC TC4081BP
IC12	8-759-240-81	IC TC4081BP
IC13	8-759-040-01	IC MC14001BCP
IC14	8-759-207-73	IC TC4030BPHB
IC101	8-766-001-49	TRANSISTOR TX-429M
IC102	8-759-503-91	IC TL082ACP
IC201	8-766-001-49	TRANSISTOR TX-429M
IC202	8-759-503-91	IC TL082ACP
IC301	8-766-001-49	TRANSISTOR TX-429M
IC302	8-759-503-91	IC TL082ACP

<TRANSISTOR>

Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q2	8-729-105-71	TRANSISTOR 2SK523-K2
Q3	8-729-384-48	TRANSISTOR 2SA844-E
Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q5	8-729-105-71	TRANSISTOR 2SK523-K2
Q6	8-729-384-48	TRANSISTOR 2SA844-E
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q8	8-729-105-71	TRANSISTOR 2SK523-K2
Q9	8-729-384-48	TRANSISTOR 2SA844-E
Q10	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q11	8-729-105-71	TRANSISTOR 2SK523-K2
Q12	8-729-384-48	TRANSISTOR 2SA844-E
Q13	8-729-384-48	TRANSISTOR 2SA844-E

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q14	8-729-384-48	TRANSISTOR 2SA844-E	
Q15	8-729-384-48	TRANSISTOR 2SA844-E	
Q16	8-729-800-10	TRANSISTOR 2SC3068	
Q101	8-729-600-19	TRANSISTOR 2SK381-A	
Q102	8-729-384-48	TRANSISTOR 2SA844-E	
Q103	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q104	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q105	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q106	8-729-600-19	TRANSISTOR 2SK381-A	
Q107	8-729-600-19	TRANSISTOR 2SK381-A	
Q108	8-729-600-19	TRANSISTOR 2SK381-A	
Q201	8-729-600-19	TRANSISTOR 2SK381-A	
Q202	8-729-384-48	TRANSISTOR 2SA844-E	
Q203	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q204	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q206	8-729-600-19	TRANSISTOR 2SK381-A	
Q207	8-729-600-19	TRANSISTOR 2SK381-A	
Q208	8-729-600-19	TRANSISTOR 2SK381-A	
Q301	8-729-600-19	TRANSISTOR 2SK381-A	
Q302	8-729-384-48	TRANSISTOR 2SA844-E	
Q303	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q304	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q305	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q306	8-729-600-19	TRANSISTOR 2SK381-A	
Q307	8-729-600-19	TRANSISTOR 2SK381-A	
Q308	8-729-600-19	TRANSISTOR 2SK381-A	

<RESISTOR>

R1	1-249-433-11	CARBON	22K	5%	1/4W
R3	1-249-427-11	CARBON	6.8K	5%	1/4W
R5	1-249-422-11	CARBON	2.7K	5%	1/4W
R6	1-249-433-11	CARBON	22K	5%	1/4W
R7	1-249-433-11	CARBON	22K	5%	1/4W
R9	1-249-427-11	CARBON	6.8K	5%	1/4W
R11	1-249-422-11	CARBON	2.7K	5%	1/4W
R12	1-249-433-11	CARBON	22K	5%	1/4W
R13	1-249-433-11	CARBON	22K	5%	1/4W
R15	1-249-427-11	CARBON	6.8K	5%	1/4W
R17	1-249-422-11	CARBON	2.7K	5%	1/4W
R18	1-249-433-11	CARBON	22K	5%	1/4W
R19	1-249-433-11	CARBON	22K	5%	1/4W
R21	1-249-427-11	CARBON	6.8K	5%	1/4W
R23	1-249-422-11	CARBON	2.7K	5%	1/4W
R31	1-249-405-11	CARBON	100	5%	1/4W
R32	1-249-405-11	CARBON	100	5%	1/4W
R33	1-249-433-11	CARBON	22K	5%	1/4W
R34	1-249-422-11	CARBON	2.7K	5%	1/4W
R35	1-249-405-11	CARBON	100	5%	1/4W
R36	1-249-405-11	CARBON	100	5%	1/4W
R37	1-249-433-11	CARBON	22K	5%	1/4W
R38	1-249-422-11	CARBON	2.7K	5%	1/4W
R39	1-249-433-11	CARBON	22K	5%	1/4W
R40	1-249-422-11	CARBON	2.7K	5%	1/4W
R52	1-249-417-11	CARBON	1K	5%	1/4W
R53	1-249-425-11	CARBON	4.7K	5%	1/4W
R54	1-249-441-11	CARBON	100K	5%	1/4W
R63	1-249-417-11	CARBON	1K	5%	1/4W
R64	1-249-437-11	CARBON	47K	5%	1/4W
R65	1-249-433-11	CARBON	22K	5%	1/4W
R66	1-249-417-11	CARBON	1K	5%	1/4W
R101	1-247-903-00	CARBON	1M	5%	1/4W
R102	1-249-431-11	CARBON	15K	5%	1/4W

REF.NO.	PART NO.	DESCRIPTION	REMARK
R103	1-249-419-11	CARBON 1.5K 5% 1/4W	
R104	1-249-430-11	CARBON 12K 5% 1/4W	
R105	1-249-409-11	CARBON 220 5% 1/4W	
R106	1-249-419-11	CARBON 1.5K 5% 1/4W	
R107	1-215-425-00	METAL 1.5K 1% 1/4W	
R108	1-249-415-11	CARBON 680 5% 1/4W	
R109	1-249-419-11	CARBON 1.5K 5% 1/4W	
R110	1-215-427-00	METAL 1.8K 1% 1/4W	
R111	1-215-453-00	METAL 22K 1% 1/4W	
R112	1-249-419-11	CARBON 1.5K 5% 1/4W	
R113	1-249-405-11	CARBON 100 5% 1/4W	
R114	1-215-445-00	METAL 10K 1% 1/4W	
R115	1-215-445-00	METAL 10K 1% 1/4W	
R116	1-249-429-11	CARBON 10K 5% 1/4W	
R117	1-215-493-00	METAL 1M 1% 1/4W	
R120	1-215-451-00	METAL 18K 1% 1/4W	
R121	1-215-453-00	METAL 22K 1% 1/4W	
R201	1-247-903-00	CARBON 1M 5% 1/4W	
R202	1-249-431-11	CARBON 15K 5% 1/4W	
R203	1-249-419-11	CARBON 1.5K 5% 1/4W	
R204	1-249-430-11	CARBON 12K 5% 1/4W	
R205	1-249-409-11	CARBON 220 5% 1/4W	
R206	1-249-419-11	CARBON 1.5K 5% 1/4W	
R207	1-215-425-00	METAL 1.5K 1% 1/4W	
R208	1-249-415-11	CARBON 680 5% 1/4W	
R209	1-249-419-11	CARBON 1.5K 5% 1/4W	
R210	1-215-427-00	METAL 1.8K 1% 1/4W	
R211	1-215-453-00	METAL 22K 1% 1/4W	
R212	1-249-419-11	CARBON 1.5K 5% 1/4W	
R213	1-249-405-11	CARBON 100 5% 1/4W	
R214	1-215-445-00	METAL 10K 1% 1/4W	
R215	1-215-445-00	METAL 10K 1% 1/4W	
R216	1-249-429-11	CARBON 10K 5% 1/4W	
R217	1-215-455-00	METAL 27K 1% 1/4W	
R301	1-247-903-00	CARBON 1M 5% 1/4W	
R302	1-249-431-11	CARBON 15K 5% 1/4W	
R303	1-249-419-11	CARBON 1.5K 5% 1/4W	
R304	1-249-430-11	CARBON 12K 5% 1/4W	
R305	1-249-409-11	CARBON 220 5% 1/4W	
R306	1-249-419-11	CARBON 1.5K 5% 1/4W	
R307	1-215-425-00	METAL 1.5K 1% 1/4W	
R308	1-249-415-11	CARBON 680 5% 1/4W	
R309	1-249-419-11	CARBON 1.5K 5% 1/4W	
R310	1-215-427-00	METAL 1.8K 1% 1/4W	
R311	1-215-453-00	METAL 22K 1% 1/4W	
R312	1-249-419-11	CARBON 1.5K 5% 1/4W	
R313	1-249-405-11	CARBON 100 5% 1/4W	
R314	1-215-445-00	METAL 10K 1% 1/4W	
R315	1-215-445-00	METAL 10K 1% 1/4W	
R316	1-249-429-11	CARBON 10K 5% 1/4W	

<VARIABLE RESISTOR>

RV1	1-237-505-21	RES, ADJ, CERMET 50K (0 IRE)
RV2	1-237-505-21	RES, ADJ, CERMET 50K (7.5 IRE)
RV3	1-237-505-21	RES, ADJ, CERMET 50K (100 IRE)

<SWITCH>

S1	1-570-857-11	SWITCH, SLIDE (WHITE BLACK)
S2	1-570-851-11	SWITCH, SLIDE (0 IRE AUTO 7.5 IRE)

BI

REF.NO.	PART NO.	DESCRIPTION			REMARK
**********					
	*A-1135-757-A	BI BOARD, COMPLETE			
		**********			
	*4-353-708-00	HOOK, FINGER			
		<CAPACITOR>			
C1	1-130-481-00	MYLAR	0.0068MF	5%	50V
C2	1-136-165-00	FILM	0.1MF	5%	50V
C3	1-123-369-00	ELECT	4.7MF	20%	25V
C4	1-123-369-00	ELECT	4.7MF	20%	25V
C5	1-102-973-00	CERAMIC	100PF	5%	50V
C7	1-124-916-11	ELECT	22MF	20%	25V
C8	1-123-369-00	ELECT	4.7MF	20%	25V
C11	1-126-964-11	ELECT	10MF	20%	16V
C12	1-101-004-00	CERAMIC	0.01MF		50V
C13	1-101-004-00	CERAMIC	0.01MF		50V
C14	1-101-004-00	CERAMIC	0.01MF		50V
C15	1-126-233-11	ELECT	22MF	20%	16V
C16	1-126-964-11	ELECT	10MF	20%	16V
C17	1-101-004-00	CERAMIC	0.01MF		50V
C18	1-101-004-00	CERAMIC	0.01MF		50V
C19	1-101-004-00	CERAMIC	0.01MF		50V
C41	1-124-034-51	ELECT	33MF	20%	16V
C42	1-124-034-51	ELECT	33MF	20%	16V
C43	1-124-034-51	ELECT	33MF	20%	16V
C44	1-124-034-51	ELECT	33MF	20%	16V
C45	1-124-034-51	ELECT	33MF	20%	16V
C46	1-124-034-51	ELECT	33MF	20%	16V
C51	1-101-004-00	CERAMIC	0.01MF		50V
C52	1-101-004-00	CERAMIC	0.01MF		50V
C53	1-101-004-00	CERAMIC	0.01MF		50V
C54	1-101-004-00	CERAMIC	0.01MF		50V
C55	1-101-004-00	CERAMIC	0.01MF		50V
C56	1-101-004-00	CERAMIC	0.01MF		50V
C57	1-101-004-00	CERAMIC	0.01MF		50V
C71	1-124-034-51	ELECT	33MF	20%	16V
C72	1-124-034-51	ELECT	33MF	20%	16V
C73	1-124-034-51	ELECT	33MF	20%	16V
C74	1-124-034-51	ELECT	33MF	20%	16V
C75	1-124-034-51	ELECT	33MF	20%	16V
C76	1-124-034-51	ELECT	33MF	20%	16V
C81	1-101-004-00	CERAMIC	0.01MF		50V
C82	1-101-004-00	CERAMIC	0.01MF		50V
C83	1-101-004-00	CERAMIC	0.01MF		50V
C84	1-101-004-00	CERAMIC	0.01MF		50V
C85	1-101-004-00	CERAMIC	0.01MF		50V
C86	1-101-004-00	CERAMIC	0.01MF		50V
C87	1-101-004-00	CERAMIC	0.01MF		50V
C101	1-101-004-00	CERAMIC	0.01MF		50V
C102	1-124-903-11	ELECT	1MF	20%	50V
C104	1-126-964-11	ELECT	10MF	20%	16V
C105	1-101-004-00	CERAMIC	0.01MF		50V
C106	1-136-161-00	FILM	0.047MF	5%	50V
C107	1-102-937-00	CERAMIC	4PF	0.25PF	50V
C108	1-101-880-00	CERAMIC	47PF	5%	50V
C109	1-136-161-00	FILM	0.047MF	5%	50V
C110	1-136-161-00	FILM	0.047MF	5%	50V
C114	1-102-951-00	CERAMIC	15PF	5%	50V
C115	1-136-153-00	FILM	0.01MF	5%	50V
C116	1-102-973-00	CERAMIC	100PF	5%	50V
C117	1-101-004-00	CERAMIC	0.01MF		50V
C118	1-101-004-00	CERAMIC	0.01MF		50V
C119	1-102-953-00	CERAMIC	18PF	5%	50V
C120	1-102-038-00	CERAMIC	0.001MF		500V
C122	1-102-943-00	CERAMIC	6PF	0.5PF	50V
C201	1-101-004-00	CERAMIC	0.01MF		50V
C202	1-124-903-11	ELECT	1MF	20%	50V
C204	1-126-964-11	ELECT	10MF	20%	16V
C205	1-101-004-00	CERAMIC	0.01MF		50V
C206	1-136-161-00	FILM	0.047MF	5%	50V
C207	1-102-937-00	CERAMIC	4PF	0.25PF	50V
C208	1-101-880-00	CERAMIC	47PF	5%	50V
C209	1-136-161-00	FILM	0.047MF	5%	50V
C210	1-136-161-00	FILM	0.047MF	5%	50V
C214	1-102-951-00	CERAMIC	15PF	5%	50V
C215	1-136-153-00	FILM	0.01MF	5%	50V
C216	1-102-973-00	CERAMIC	100PF	5%	50V
C217	1-101-004-00	CERAMIC	0.01MF		50V
C218	1-101-004-00	CERAMIC	0.01MF		50V
C219	1-102-953-00	CERAMIC	18PF	5%	50V
C220	1-102-038-00	CERAMIC	0.001MF		500V
C222	1-102-943-00	CERAMIC	6PF	0.5PF	50V
C301	1-101-004-00	CERAMIC	0.01MF		50V
C302	1-124-903-11	ELECT	1MF	20%	50V
C304	1-126-964-11	ELECT	10MF	20%	16V
C305	1-101-004-00	CERAMIC	0.01MF		50V
C306	1-136-161-00	FILM	0.047MF	5%	50V
C307	1-102-937-00	CERAMIC	4PF	0.25PF	50V
C308	1-101-880-00	CERAMIC	47PF	5%	50V
C309	1-136-161-00	FILM	0.047MF	5%	50V
C310	1-136-161-00	FILM	0.047MF	5%	50V
C314	1-102-951-00	CERAMIC	15PF	5%	50V
C315	1-136-153-00	FILM	0.01MF	5%	50V
C316	1-102-973-00	CERAMIC	100PF	5%	50V
C317	1-101-004-00	CERAMIC	0.01MF		50V
C318	1-101-004-00	CERAMIC	0.01MF		50V
C319	1-102-953-00	CERAMIC	18PF	5%	50V
C320	1-102-038-00	CERAMIC	0.001MF		500V
C322	1-102-943-00	CERAMIC	6PF	0.5PF	50V
		<COMPOSITION CIRCUIT BLOCK>			
CP3	1-231-765-00	COMPOSITION CIRCUIT BLOCK			
CP4	1-231-765-00	COMPOSITION CIRCUIT BLOCK			
CP5	1-231-765-00	COMPOSITION CIRCUIT BLOCK			
CP6	1-231-765-00	COMPOSITION CIRCUIT BLOCK			
CP7	1-231-765-00	COMPOSITION CIRCUIT BLOCK			
CP101	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP102	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP103	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP104	1-232-726-11	COMPOSITION CIRCUIT BLOCK			
CP201	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP202	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP203	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP204	1-232-726-11	COMPOSITION CIRCUIT BLOCK			
CP301	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP302	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP303	1-233-012-11	COMPOSITION CIRCUIT BLOCK			
CP304	1-232-726-11	COMPOSITION CIRCUIT BLOCK			
		<DIODE>			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			

REF.NO.	PART NO.	DESCRIPTION	REMARK
D4	8-719-911-19	DIODE 1SS119	
D5	8-719-911-19	DIODE 1SS119	
D6	8-719-110-31	DIODE RD12ESB2	
D7	8-719-911-19	DIODE 1SS119	
D8	8-719-911-19	DIODE 1SS119	
D101	8-719-911-19	DIODE 1SS119	
D102	8-719-016-42	DIODE MC932	
D103	8-719-109-74	DIODE RD4.3ESB1	
D104	8-719-911-19	DIODE 1SS119	
D105	8-719-109-93	DIODE RD6.2ESB2	
D201	8-719-911-19	DIODE 1SS119	
D202	8-719-016-42	DIODE MC932	
D203	8-719-109-74	DIODE RD4.3ESB1	
D204	8-719-911-19	DIODE 1SS119	
D205	8-719-109-93	DIODE RD6.2ESB2	
D301	8-719-911-19	DIODE 1SS119	
D302	8-719-016-42	DIODE MC932	
D303	8-719-109-74	DIODE RD4.3ESB1	
D304	8-719-911-19	DIODE 1SS119	
D305	8-719-109-93	DIODE RD6.2ESB2	

<IC>

IC1	8-759-745-58	IC NJM4558D	
IC101	8-759-140-53	IC UPD4053BC	
IC102	8-766-001-49	TRANSISTOR TX-429M	
IC103	8-759-503-91	IC TL082ACP	
IC104	8-759-503-91	IC TL082ACP	
IC105	8-759-503-91	IC TL082ACP	
IC201	8-759-140-53	IC UPD4053BC	
IC202	8-766-001-49	TRANSISTOR TX-429M	
IC203	8-759-503-91	IC TL082ACP	
IC204	8-759-503-91	IC TL082ACP	
IC205	8-759-503-91	IC TL082ACP	
IC301	8-759-140-53	IC UPD4053BC	
IC302	8-766-001-49	TRANSISTOR TX-429M	
IC303	8-759-503-91	IC TL082ACP	
IC304	8-759-503-91	IC TL082ACP	
IC305	8-759-503-91	IC TL082ACP	

<TRANSISTOR>

Q1	8-729-900-74	TRANSISTOR DTC143TS	
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q11	8-729-201-05	TRANSISTOR 2SC2878-B	
Q12	8-729-201-05	TRANSISTOR 2SC2878-B	
Q13	8-729-201-05	TRANSISTOR 2SC2878-B	
Q14	8-729-201-05	TRANSISTOR 2SC2878-B	
Q15	8-729-900-65	TRANSISTOR DTA144ES	
Q101	8-729-384-48	TRANSISTOR 2SA844-E	
Q102	8-729-384-48	TRANSISTOR 2SA844-E	
Q103	8-729-384-48	TRANSISTOR 2SA844-E	
Q105	8-729-600-19	TRANSISTOR 2SK381-A	
Q106	8-729-384-48	TRANSISTOR 2SA844-E	
Q107	8-729-266-82	TRANSISTOR 2SC2668-O	
Q108	8-729-384-48	TRANSISTOR 2SA844-E	
Q109	8-729-600-19	TRANSISTOR 2SK381-A	
Q110	8-729-600-19	TRANSISTOR 2SK381-A	
Q113	8-729-600-19	TRANSISTOR 2SK381-A	
Q114	8-729-200-17	TRANSISTOR 2SA1091-O	
Q201	8-729-384-48	TRANSISTOR 2SA844-E	
Q202	8-729-384-48	TRANSISTOR 2SA844-E	
Q203	8-729-384-48	TRANSISTOR 2SA844-E	
Q205	8-729-600-19	TRANSISTOR 2SK381-A	
Q206	8-729-384-48	TRANSISTOR 2SA844-E	
Q207	8-729-266-82	TRANSISTOR 2SC2668-O	
Q208	8-729-384-48	TRANSISTOR 2SA844-E	
Q209	8-729-600-19	TRANSISTOR 2SK381-A	
Q210	8-729-600-19	TRANSISTOR 2SK381-A	
Q213	8-729-600-19	TRANSISTOR 2SK381-A	
Q214	8-729-200-17	TRANSISTOR 2SA1091-O	
Q301	8-729-384-48	TRANSISTOR 2SA844-E	
Q302	8-729-384-48	TRANSISTOR 2SA844-E	
Q303	8-729-384-48	TRANSISTOR 2SA844-E	
Q305	8-729-600-19	TRANSISTOR 2SK381-A	
Q306	8-729-384-48	TRANSISTOR 2SA844-E	
Q307	8-729-266-82	TRANSISTOR 2SC2668-O	
Q308	8-729-384-48	TRANSISTOR 2SA844-E	
Q309	8-729-600-19	TRANSISTOR 2SK381-A	
Q310	8-729-600-19	TRANSISTOR 2SK381-A	
Q313	8-729-600-19	TRANSISTOR 2SK381-A	
Q314	8-729-200-17	TRANSISTOR 2SA1091-O	

<RESISTOR>

R1	1-247-903-00	CARBON	1M	5%	1/4W	
R2	1-249-429-11	CARBON	10K	5%	1/4W	
R3	1-215-493-00	METAL	1M	1%	1/4W	
R4	1-215-469-91	METAL	100K	1%	1/4W	
R5	1-249-435-11	CARBON	33K	5%	1/4W	
R8	1-249-441-11	CARBON	100K	5%	1/4W	
R9	1-249-424-11	CARBON	3.9K	5%	1/4W	
R10	1-249-425-11	CARBON	4.7K	5%	1/4W	
R11	1-249-435-11	CARBON	33K	5%	1/4W	
R12	1-249-429-11	CARBON	10K	5%	1/4W	
R13	1-249-425-11	CARBON	4.7K	5%	1/4W	
R14	1-249-435-11	CARBON	33K	5%	1/4W	
R15	1-249-429-11	CARBON	10K	5%	1/4W	
R23	1-249-417-11	CARBON	1K	5%	1/4W	
R24	1-249-417-11	CARBON	1K	5%	1/4W	
R25	1-249-417-11	CARBON	1K	5%	1/4W	
R31	1-249-430-11	CARBON	12K	5%	1/4W	
R32	1-249-436-11	CARBON	39K	5%	1/4W	
R33	1-249-430-11	CARBON	12K	5%	1/4W	
R51	1-249-417-11	CARBON	1K	5%	1/4W	
R52	1-249-417-11	CARBON	1K	5%	1/4W	
R53	1-249-417-11	CARBON	1K	5%	1/4W	
R54	1-249-431-11	CARBON	15K	5%	1/4W	
R55	1-249-437-11	CARBON	47K	5%	1/4W	
R56	1-249-431-11	CARBON	15K	5%	1/4W	
R57	1-249-431-11	CARBON	15K	5%	1/4W	
R58	1-249-439-11	CARBON	68K	5%	1/4W	
R60	1-215-463-00	METAL	56K	1%	1/4W	
R61	1-215-445-00	METAL	10K	1%	1/4W	
R101	1-249-441-11	CARBON	100K	5%	1/4W	
R102	1-249-421-11	CARBON	2.2K	5%	1/4W	
R104	1-215-461-00	METAL	47K	1%	1/4W	
R105	1-215-477-00	METAL	220K	1%	1/4W	
R106	1-215-427-00	METAL	1.8K	1%	1/4W	
R107	1-249-435-11	CARBON	33K	5%	1/4W	
R108	1-249-430-11	CARBON	12K	5%	1/4W	
R109	1-249-417-11	CARBON	1K	5%	1/4W	
R110	1-249-441-11	CARBON	100K	5%	1/4W	
R111	1-249-417-11	CARBON	1K	5%	1/4W	
R112	1-249-417-11	CARBON	1K	5%	1/4W	
R113	1-247-903-00	CARBON	1M	5%	1/4W	

BI **BJ**

REF.NO.	PART NO.	DESCRIPTION				REMARK
R114	1-249-419-11	CARBON	1.5K	5%	1/4W	
R115	1-249-419-11	CARBON	1.5K	5%	1/4W	
R116	1-249-424-11	CARBON	3.9K	5%	1/4W	
R117	1-249-419-11	CARBON	1.5K	5%	1/4W	
R118	1-215-421-00	METAL	1K	1%	1/4W	
R119	1-249-405-11	CARBON	100	5%	1/4W	
R120	1-249-405-11	CARBON	100	5%	1/4W	
R121	1-249-409-11	CARBON	220	5%	1/4W	
R122	1-215-427-00	METAL	1.8K	1%	1/4W	
R123	1-249-429-11	CARBON	10K	5%	1/4W	
R124	1-249-429-11	CARBON	10K	5%	1/4W	
R125	1-249-422-11	CARBON	2.7K	5%	1/4W	
R127	1-215-453-00	METAL	22K	1%	1/4W	
R128	1-215-445-00	METAL	10K	1%	1/4W	
R136	1-215-477-00	METAL	220K	1%	1/4W	
R137	1-249-417-11	CARBON	1K	5%	1/4W	
R138	1-249-441-11	CARBON	100K	5%	1/4W	
R140	1-249-429-11	CARBON	10K	5%	1/4W	
R141	1-215-461-00	METAL	47K	1%	1/4W	
R142	1-215-455-00	METAL	27K	1%	1/4W	
R143	1-215-488-00	METAL	620K	1%	1/4W	
R144	1-249-434-11	CARBON	27K	5%	1/4W	
R146	1-249-417-11	CARBON	1K	5%	1/4W	
R147	1-249-405-11	CARBON	100	5%	1/4W	
R201	1-249-441-11	CARBON	100K	5%	1/4W	
R202	1-249-421-11	CARBON	2.2K	5%	1/4W	
R204	1-215-461-00	METAL	47K	1%	1/4W	
R205	1-215-477-00	METAL	220K	1%	1/4W	
R206	1-215-427-00	METAL	1.8K	1%	1/4W	
R207	1-249-435-11	CARBON	33K	5%	1/4W	
R208	1-249-430-11	CARBON	12K	5%	1/4W	
R209	1-249-417-11	CARBON	1K	5%	1/4W	
R210	1-249-441-11	CARBON	100K	5%	1/4W	
R211	1-249-417-11	CARBON	1K	5%	1/4W	
R212	1-249-417-11	CARBON	1K	5%	1/4W	
R213	1-247-903-00	CARBON	1M	5%	1/4W	
R214	1-249-419-11	CARBON	1.5K	5%	1/4W	
R215	1-249-419-11	CARBON	1.5K	5%	1/4W	
R216	1-249-424-11	CARBON	3.9K	5%	1/4W	
R217	1-249-419-11	CARBON	1.5K	5%	1/4W	
R218	1-215-421-00	METAL	1K	1%	1/4W	
R219	1-249-405-11	CARBON	100	5%	1/4W	
R220	1-249-405-11	CARBON	100	5%	1/4W	
R221	1-249-409-11	CARBON	220	5%	1/4W	
R222	1-215-427-00	METAL	1.8K	1%	1/4W	
R223	1-249-429-11	CARBON	10K	5%	1/4W	
R224	1-249-429-11	CARBON	10K	5%	1/4W	
R225	1-249-422-11	CARBON	2.7K	5%	1/4W	
R227	1-215-453-00	METAL	22K	1%	1/4W	
R228	1-215-445-00	METAL	10K	1%	1/4W	
R236	1-215-477-00	METAL	220K	1%	1/4W	
R237	1-249-417-11	CARBON	1K	5%	1/4W	
R238	1-249-441-11	CARBON	100K	5%	1/4W	
R240	1-249-429-11	CARBON	10K	5%	1/4W	
R241	1-215-461-00	METAL	47K	1%	1/4W	
R242	1-215-455-00	METAL	27K	1%	1/4W	
R243	1-215-488-00	METAL	620K	1%	1/4W	
R244	1-249-434-11	CARBON	27K	5%	1/4W	
R246	1-249-417-11	CARBON	1K	5%	1/4W	
R247	1-249-405-11	CARBON	100	5%	1/4W	
R301	1-249-441-11	CARBON	100K	5%	1/4W	
R302	1-249-421-11	CARBON	2.2K	5%	1/4W	
R304	1-215-461-00	METAL	47K	1%	1/4W	
R305	1-215-477-00	METAL	220K	1%	1/4W	
R306	1-215-427-00	METAL	1.8K	1%	1/4W	
R307	1-249-435-11	CARBON	33K	5%	1/4W	
R308	1-249-430-11	CARBON	12K	5%	1/4W	
R309	1-249-417-11	CARBON	1K	5%	1/4W	
R310	1-249-441-11	CARBON	100K	5%	1/4W	
R311	1-249-417-11	CARBON	1K	5%	1/4W	
R312	1-249-417-11	CARBON	1K	5%	1/4W	
R313	1-247-903-00	CARBON	1M	5%	1/4W	
R314	1-249-419-11	CARBON	1.5K	5%	1/4W	
R315	1-249-419-11	CARBON	1.5K	5%	1/4W	
R316	1-249-424-11	CARBON	3.9K	5%	1/4W	
R317	1-249-419-11	CARBON	1.5K	5%	1/4W	
R318	1-215-421-00	METAL	1K	1%	1/4W	
R319	1-249-405-11	CARBON	100	5%	1/4W	
R320	1-249-405-11	CARBON	100	5%	1/4W	
R321	1-249-409-11	CARBON	220	5%	1/4W	
R322	1-215-427-00	METAL	1.8K	1%	1/4W	
R323	1-249-429-11	CARBON	10K	5%	1/4W	
R324	1-249-429-11	CARBON	10K	5%	1/4W	
R325	1-249-422-11	CARBON	2.7K	5%	1/4W	
R327	1-215-453-00	METAL	22K	1%	1/4W	
R328	1-215-445-00	METAL	10K	1%	1/4W	
R336	1-215-477-00	METAL	220K	1%	1/4W	
R337	1-249-417-11	CARBON	1K	5%	1/4W	
R338	1-249-441-11	CARBON	100K	5%	1/4W	
R340	1-249-429-11	CARBON	10K	5%	1/4W	
R341	1-215-461-00	METAL	47K	1%	1/4W	
R342	1-215-455-00	METAL	27K	1%	1/4W	
R343	1-215-488-00	METAL	620K	1%	1/4W	
R344	1-249-434-11	CARBON	27K	5%	1/4W	
R346	1-249-417-11	CARBON	1K	5%	1/4W	
R347	1-249-405-11	CARBON	100	5%	1/4W	

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*A-1135-361-A BJ BOARD, COMPLETE
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*4-353-708-00 HOOK, FINGER

<CAPACITOR>

C1	1-101-361-00	CERAMIC	150PF	5%	50V
C2	1-101-361-00	CERAMIC	150PF	5%	50V
C4	1-102-821-00	CERAMIC	360PF	5%	50V
C5	1-130-473-00	MYLAR	0.0015MF	5%	50V
C11	1-104-302-11	POLYSTYRENE	0.001MF	5%	50V
C12	1-102-525-11	CERAMIC	68PF	5%	50V
C14	1-102-525-11	CERAMIC	68PF	5%	50V
C15	1-102-525-11	CERAMIC	68PF	5%	50V
C16	1-102-525-11	CERAMIC	68PF	5%	50V
C17	1-102-525-11	CERAMIC	68PF	5%	50V
C18	1-104-302-11	POLYSTYRENE	0.001MF	5%	50V
C19	1-102-973-00	CERAMIC	100PF	5%	50V
C20	1-102-525-11	CERAMIC	68PF	5%	50V
C21	1-101-361-00	CERAMIC	150PF	5%	50V
C22	1-101-890-00	CERAMIC	75PF	5%	50V
C23	1-102-965-00	CERAMIC	39PF	5%	50V
C25	1-102-946-00	CERAMIC	9PF	1PF	50V
C26	1-102-944-00	CERAMIC	7PF	1PF	50V
C27	1-101-361-00	CERAMIC	150PF	5%	50V
C28	1-130-471-00	MYLAR	0.001MF	5%	50V
C29	1-130-471-00	MYLAR	0.001MF	5%	50V
C30	1-101-004-00	CERAMIC	0.01MF		50V

BJ

REF.NO.	PART NO.	DESCRIPTION				REMARK
C31	1-101-361-00	CERAMIC	150PF	5%	50V	
C32	1-101-361-00	CERAMIC	150PF	5%	50V	
C33	1-101-361-00	CERAMIC	150PF	5%	50V	
C34	1-101-361-00	CERAMIC	150PF	5%	50V	
C35	1-130-471-00	MYLAR	0.001MF	5%	50V	
C36	1-102-824-00	CERAMIC	470PF	5%	50V	
C37	1-124-903-11	ELECT	1MF	20%	50V	
C38	1-101-004-00	CERAMIC	0.01MF		50V	
C39	1-101-004-00	CERAMIC	0.01MF		50V	
C40	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C61	1-101-888-00	CERAMIC	68PF	5%	50V	
C62	1-101-880-00	CERAMIC	47PF	5%	50V	
C63	1-101-888-00	CERAMIC	68PF	5%	50V	
C64	1-101-880-00	CERAMIC	47PF	5%	50V	
C65	1-102-820-00	CERAMIC	330PF	5%	50V	
C66	1-101-004-00	CERAMIC	0.01MF		50V	
C67	1-101-880-00	CERAMIC	47PF	5%	50V	
C100	1-124-910-11	ELECT	47MF	20%	16V	
C102	1-124-034-51	ELECT	33MF	20%	16V	
C106	1-101-004-00	CERAMIC	0.01MF		50V	
C108	1-124-034-51	ELECT	33MF	20%	16V	
C109	1-101-004-00	CERAMIC	0.01MF		50V	
C110	1-101-004-00	CERAMIC	0.01MF		50V	
C111	1-101-004-00	CERAMIC	0.01MF		50V	
C112	1-101-004-00	CERAMIC	0.01MF		50V	
C113	1-101-004-00	CERAMIC	0.01MF		50V	
C114	1-126-964-11	ELECT	10MF	20%	16V	
C115	1-101-004-00	CERAMIC	0.01MF		50V	
C116	1-101-004-00	CERAMIC	0.01MF		50V	
C117	1-101-004-00	CERAMIC	0.01MF		50V	
C118	1-126-964-11	ELECT	10MF	20%	16V	
C120	1-101-004-00	CERAMIC	0.01MF		50V	
C121	1-101-004-00	CERAMIC	0.01MF		50V	
C122	1-101-004-00	CERAMIC	0.01MF		50V	
C130	1-124-034-51	ELECT	33MF	20%	16V	

<COMPOSITION CIRCUIT BLOCK>

CP1	1-232-738-11	COMPOSITION CIRCUIT BLOCK
CP2	1-232-738-11	COMPOSITION CIRCUIT BLOCK
CP3	1-232-738-11	COMPOSITION CIRCUIT BLOCK
CP4	1-232-738-11	COMPOSITION CIRCUIT BLOCK
CP5	1-232-738-11	COMPOSITION CIRCUIT BLOCK

<DIODE>

D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D3	8-719-911-19	DIODE 1SS119
D7	8-719-911-19	DIODE 1SS119
D8	8-719-911-19	DIODE 1SS119
D9	8-719-911-19	DIODE 1SS119
D11	8-719-016-42	DIODE MC932

<IC>

IC1	8-759-345-38	IC HD14538BP
IC2	8-759-040-01	IC MC14001BCP
IC3	8-759-240-40	IC TC4040BP
IC4	8-759-240-40	IC TC4040BP
IC5	8-759-000-35	IC MC14027BCP
IC6	8-759-000-35	IC MC14027BCP
IC7	8-759-000-35	IC MC14027BCP
IC8	8-759-000-35	IC MC14027BCP
IC9	8-759-000-35	IC MC14027BCP
IC10	8-759-345-38	IC HD14538BP
IC11	8-759-345-38	IC HD14538BP
IC12	8-759-345-38	IC HD14538BP
IC13	8-759-040-01	IC MC14001BCP
IC14	8-759-040-01	IC MC14001BCP
IC15	8-759-240-71	IC TC4071BP
IC16	8-759-040-11	IC MC14011BCP
IC17	8-759-040-11	IC MC14011BCP
IC18	8-759-000-32	IC MC14023BCP
IC19	8-759-240-81	IC TC4081BP
IC20	8-759-240-81	IC TC4081BP
IC21	8-759-240-71	IC TC4071BP
IC22	8-759-240-71	IC TC4071BP
IC23	8-759-040-73	IC MC14073BCP
IC24	8-759-000-51	IC MC14069UBCP
IC25	8-759-000-51	IC MC14069UBCP
IC26	8-759-041-75	IC MC14175BCP
IC27	8-759-140-53	IC UPD4053BC
IC28	8-759-000-77	IC MC14520BCP
IC29	8-759-345-38	IC HD14538BP

<COIL>

L1	1-408-098-00	INDUCTOR	560UH
L2	1-408-098-00	INDUCTOR	560UH
L3	1-407-715-11	INDUCTOR	680UH

<TRANSISTOR>

Q14	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q15	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q16	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q17	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q18	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q19	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q20	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q23	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q24	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q25	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q26	8-729-119-78	TRANSISTOR 2SC2785-HFE

<RESISTOR>

R2	1-215-439-00	METAL	5.6K	1%	1/4W
R3	1-249-422-11	CARBON	2.7K	5%	1/4W
R4	1-215-449-00	METAL	15K	1%	1/4W
R5	1-249-441-11	CARBON	100K	5%	1/4W
R6	1-249-425-11	CARBON	4.7K	5%	1/4W
R7	1-215-439-00	METAL	5.6K	1%	1/4W
R37	1-249-441-11	CARBON	100K	5%	1/4W
R38	1-215-454-00	METAL	24K	1%	1/4W
R39	1-249-422-11	CARBON	2.7K	5%	1/4W
R42	1-249-433-11	CARBON	22K	5%	1/4W
R43	1-247-876-11	CARBON	75K	5%	1/4W
R44	1-249-429-11	CARBON	10K	5%	1/4W
R45	1-249-441-11	CARBON	100K	5%	1/4W
R46	1-249-441-11	CARBON	100K	5%	1/4W
R47	1-247-862-11	CARBON	20K	5%	1/4W
R48	1-215-467-00	METAL	82K	1%	1/4W
R49	1-249-422-11	CARBON	2.7K	5%	1/4W
R50	1-215-469-91	METAL	100K	1%	1/4W
R51	1-215-445-00	METAL	10K	1%	1/4W

BJ **BK**

REF.NO.	PART NO.	DESCRIPTION				REMARK
R52	1-247-885-00	CARBON	180K	5%	1/4W	
R53	1-215-449-00	METAL	15K	1%	1/4W	
R54	1-249-422-11	CARBON	2.7K	5%	1/4W	
R56	1-249-434-11	CARBON	27K	5%	1/4W	
R57	1-249-422-11	CARBON	2.7K	5%	1/4W	
R58	1-249-425-11	CARBON	4.7K	5%	1/4W	
R59	1-247-836-11	CARBON	1.6K	5%	1/4W	
R60	1-249-427-11	CARBON	6.8K	5%	1/4W	
R61	1-215-449-00	METAL	15K	1%	1/4W	
R62	1-249-433-11	CARBON	22K	5%	1/4W	
R63	1-249-425-11	CARBON	4.7K	5%	1/4W	
R64	1-249-425-11	CARBON	4.7K	5%	1/4W	
R65	1-249-417-11	CARBON	1K	5%	1/4W	
R66	1-249-430-11	CARBON	12K	5%	1/4W	
R67	1-249-425-11	CARBON	4.7K	5%	1/4W	
R68	1-249-433-11	CARBON	22K	5%	1/4W	
R69	1-249-425-11	CARBON	4.7K	5%	1/4W	
R70	1-249-417-11	CARBON	1K	5%	1/4W	
R71	1-249-430-11	CARBON	12K	5%	1/4W	
R72	1-249-433-11	CARBON	22K	5%	1/4W	
R74	1-249-430-11	CARBON	12K	5%	1/4W	
R75	1-249-422-11	CARBON	2.7K	5%	1/4W	
R76	1-215-463-00	METAL	56K	1%	1/4W	
R77	1-215-475-00	METAL	180K	1%	1/4W	
R78	1-215-439-00	METAL	5.6K	1%	1/4W	
R79	1-249-425-11	CARBON	4.7K	5%	1/4W	
R80	1-249-433-11	CARBON	22K	5%	1/4W	
R81	1-249-425-11	CARBON	4.7K	5%	1/4W	
R82	1-249-415-11	CARBON	680	5%	1/4W	
R83	1-249-417-11	CARBON	1K	5%	1/4W	
R85	1-249-430-11	CARBON	12K	5%	1/4W	
R87	1-249-422-11	CARBON	2.7K	5%	1/4W	
R89	1-247-887-00	CARBON	220K	5%	1/4W	
R90	1-249-441-11	CARBON	100K	5%	1/4W	
R91	1-249-441-11	CARBON	100K	5%	1/4W	
R92	1-249-441-11	CARBON	100K	5%	1/4W	
R93	1-249-429-11	CARBON	10K	5%	1/4W	
R94	1-249-429-11	CARBON	10K	5%	1/4W	
R95	1-249-441-11	CARBON	100K	5%	1/4W	
R96	1-249-417-11	CARBON	1K	5%	1/4W	
R100	1-249-423-11	CARBON	3.3K	5%	1/4W	
R111	1-249-427-11	CARBON	6.8K	5%	1/4W	
R112	1-249-429-11	CARBON	10K	5%	1/4W	
R113	1-249-429-11	CARBON	10K	5%	1/4W	
R114	1-249-422-11	CARBON	2.7K	5%	1/4W	
R115	1-249-419-11	CARBON	1.5K	5%	1/4W	
R116	1-249-427-11	CARBON	6.8K	5%	1/4W	
R117	1-249-429-11	CARBON	10K	5%	1/4W	
R118	1-249-429-11	CARBON	10K	5%	1/4W	
R119	1-249-422-11	CARBON	2.7K	5%	1/4W	
R120	1-249-419-11	CARBON	1.5K	5%	1/4W	
R121	1-249-417-11	CARBON	1K	5%	1/4W	
R122	1-249-417-11	CARBON	1K	5%	1/4W	
R123	1-249-413-11	CARBON	470	5%	1/4W	
R124	1-249-417-11	CARBON	1K	5%	1/4W	
R125	1-249-417-11	CARBON	1K	5%	1/4W	
R126	1-249-417-11	CARBON	1K	5%	1/4W	
R127	1-249-417-11	CARBON	1K	5%	1/4W	
R128	1-249-417-11	CARBON	1K	5%	1/4W	
R129	1-249-417-11	CARBON	1K	5%	1/4W	

<VARIABLE RESISTOR>

RV1	1-237-504-21	RES, ADJ, CERMET 20K (H PULSE INTERVAL)	
RV3	1-237-504-21	RES, ADJ, CERMET 20K (H PULSE POSITION)	
RV4	1-237-503-21	RES, ADJ, CERMET 10K (BURST GATE PULSE WIDTH)	
RV5	1-237-506-21	RES, ADJ, CERMET 100K (SUNPRING PULSE POSITION)	
RV6	1-237-505-21	RES, ADJ, CERMET 50K (INTERLACE)	
RV7	1-237-504-21	RES, ADJ, CERMET 20K (BRT PULSE)	
RV8	1-237-504-21	RES, ADJ, CERMET 20K (BURST GATE PULSE WIDTH)	
RV9	1-237-505-21	RES, ADJ, CERMET 50K (PIC SET UP)	

<SWITCH>

S1	1-570-857-11	SWITCH, SLIDE (RESIDUAI)	

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	*A-1135-464-A	BK BOARD, COMPLETE	
		**********	
	*2-365-226-00	HEAT SINK	
	4-370-970-01	SPACER, TR	
	*4-379-411-01	RETAINER (BK), TR	
	*4-902-345-01	HEAT SINK	

<CONNECTOR>

BK1	*1-566-056-11	PIN, CONNECTOR 4P	
BK2	*1-566-056-11	PIN, CONNECTOR 4P	
BK3	*1-566-056-11	PIN, CONNECTOR 4P	
BK4	*1-566-055-11	PIN, CONNECTOR 3P	
BK5	*1-566-057-11	PIN, CONNECTOR 5P	
BK6	*1-566-056-11	PIN, CONNECTOR 4P	
BK7	*1-566-056-11	PIN, CONNECTOR 4P	
BK8	*1-566-056-11	PIN, CONNECTOR 4P	

<CAPACITOR>

C1	1-130-483-00	MYLAR	0.01MF	5%	50V
C10	1-123-939-00	ELECT	10MF	20%	200V
C11	1-130-483-00	MYLAR	0.01MF	5%	50V
C51	1-101-004-00	CERAMIC	0.01MF		50V
C52	1-101-004-00	CERAMIC	0.01MF		50V
C53	1-101-004-00	CERAMIC	0.01MF		50V
C54	1-101-004-00	CERAMIC	0.01MF		50V
C55	1-101-004-00	CERAMIC	0.01MF		50V
C56	1-101-004-00	CERAMIC	0.01MF		50V
C64	1-124-034-51	ELECT	33MF	20%	16V
C65	1-124-034-51	ELECT	33MF	20%	16V
C66	1-124-034-51	ELECT	33MF	20%	16V
C67	1-124-034-51	ELECT	33MF	20%	16V
C68	1-124-034-51	ELECT	33MF	20%	16V
C69	1-124-034-51	ELECT	33MF	20%	16V
C70	1-124-034-51	ELECT	33MF	20%	16V
C71	1-124-034-51	ELECT	33MF	20%	16V
C72	1-124-034-51	ELECT	33MF	20%	16V
C73	1-124-034-51	ELECT	33MF	20%	16V
C74	1-124-034-51	ELECT	33MF	20%	16V
C75	1-124-034-51	ELECT	33MF	20%	16V
C76	1-124-034-51	ELECT	33MF	20%	16V
C80	1-123-939-00	ELECT	10MF	20%	200V
C81	1-123-939-00	ELECT	10MF	20%	200V
C82	1-123-939-00	ELECT	10MF	20%	200V
C83	1-124-808-51	ELECT	10MF	20%	200V
C84	1-124-808-51	ELECT	10MF	20%	200V
C85	1-124-808-51	ELECT	10MF	20%	200V

BK

REF.NO.	PART NO.	DESCRIPTION				REMARK
C86	1-123-939-00	ELECT	10MF	20%	200V	
C87	1-123-939-00	ELECT	10MF	20%	200V	
C88	1-123-939-00	ELECT	10MF	20%	200V	
C91	1-102-050-00	CERAMIC	0.01MF		500V	
C92	1-102-050-00	CERAMIC	0.01MF		500V	
C93	1-102-050-00	CERAMIC	0.01MF		500V	
C100	1-136-165-00	FILM	0.1MF	5%	50V	
C102	1-123-935-00	ELECT	33MF	20%	160V	
C103	1-102-976-00	CERAMIC	180PF	5%	50V	
C104	1-136-110-00	FILM	0.91MF	5%	200V	
C105	1-124-034-51	ELECT	33MF	20%	16V	
C106	1-126-967-11	ELECT	47MF	20%	25V	
C107	1-101-004-00	CERAMIC	0.01MF		50V	
C108	1-106-371-00	MYLAR	0.015MF	10%	200V	
C109	1-124-046-00	ELECT	10MF	20%	160V	
C110	1-102-973-00	CERAMIC	100PF	5%	50V	
C111	1-102-965-00	CERAMIC	39PF	5%	50V	
C112	1-102-942-00	CERAMIC	5PF	1PF	50V	
C114	1-102-936-00	CERAMIC	3PF	0.25PF	50V	
C115	1-101-880-00	CERAMIC	47PF	5%	50V	
C133	1-102-942-00	CERAMIC	5PF	1PF	50V	
C200	1-136-165-00	FILM	0.1MF	5%	50V	
C202	1-123-935-00	ELECT	33MF	20%	160V	
C203	1-102-976-00	CERAMIC	180PF	5%	50V	
C204	1-136-110-00	FILM	0.91MF	5%	200V	
C205	1-124-034-51	ELECT	33MF	20%	16V	
C206	1-126-967-11	ELECT	47MF	20%	25V	
C207	1-101-004-00	CERAMIC	0.01MF		50V	
C208	1-106-371-00	MYLAR	0.015MF	10%	200V	
C209	1-124-046-00	ELECT	10MF	20%	160V	
C210	1-102-973-00	CERAMIC	100PF	5%	50V	
C211	1-102-965-00	CERAMIC	39PF	5%	50V	
C212	1-102-942-00	CERAMIC	5PF	1PF	50V	
C214	1-102-936-00	CERAMIC	3PF	0.25PF	50V	
C215	1-101-880-00	CERAMIC	47PF	5%	50V	
C233	1-102-942-00	CERAMIC	5PF	1PF	50V	
C300	1-136-165-00	FILM	0.1MF	5%	50V	
C302	1-123-935-00	ELECT	33MF	20%	160V	
C303	1-102-976-00	CERAMIC	180PF	5%	50V	
C304	1-136-110-00	FILM	0.91MF	5%	200V	
C305	1-124-034-51	ELECT	33MF	20%	16V	
C306	1-126-967-11	ELECT	47MF	20%	25V	
C307	1-101-004-00	CERAMIC	0.01MF		50V	
C308	1-106-371-00	MYLAR	0.015MF	10%	200V	
C309	1-124-046-00	ELECT	10MF	20%	160V	
C310	1-102-973-00	CERAMIC	100PF	5%	50V	
C311	1-102-965-00	CERAMIC	39PF	5%	50V	
C312	1-102-942-00	CERAMIC	5PF	1PF	50V	
C314	1-102-936-00	CERAMIC	3PF	0.25PF	50V	
C315	1-101-880-00	CERAMIC	47PF	5%	50V	
C333	1-102-942-00	CERAMIC	5PF	1PF	50V	

<TRIMMER>

CV101	1-141-179-12	CAP, VAR, TRIMMER
CV102	1-141-171-00	CAP, TRIMMER 15P
CV201	1-141-179-12	CAP, VAR, TRIMMER
CV202	1-141-171-00	CAP, TRIMMER 15P
CV301	1-141-179-12	CAP, VAR, TRIMMER
CV302	1-141-171-00	CAP, TRIMMER 15P

<DIODE>

REF.NO.	PART NO.	DESCRIPTION	REMARK
D1	8-719-911-19	DIODE 1SS119	
D2	8-719-911-19	DIODE 1SS119	
D101	8-719-911-19	DIODE 1SS119	
D102	8-719-911-19	DIODE 1SS119	
D103	8-719-911-19	DIODE 1SS119	
D104	8-719-911-19	DIODE 1SS119	
D105	8-719-911-19	DIODE 1SS119	
D106	8-719-911-19	DIODE 1SS119	
D107	8-719-911-19	DIODE 1SS119	
D108	8-719-911-19	DIODE 1SS119	
D109	8-719-901-83	DIODE 1SS83	
D110	8-719-300-80	DIODE RU-1C	
D111	8-719-300-80	DIODE RU-1C	
D112	8-719-911-19	DIODE 1SS119	
D113	8-719-911-19	DIODE 1SS119	
D114	8-719-911-19	DIODE 1SS119	
D115	8-719-911-19	DIODE 1SS119	
D116	8-719-911-19	DIODE 1SS119	
D201	8-719-911-19	DIODE 1SS119	
D202	8-719-911-19	DIODE 1SS119	
D203	8-719-911-19	DIODE 1SS119	
D204	8-719-911-19	DIODE 1SS119	
D205	8-719-911-19	DIODE 1SS119	
D206	8-719-911-19	DIODE 1SS119	
D207	8-719-911-19	DIODE 1SS119	
D208	8-719-911-19	DIODE 1SS119	
D209	8-719-901-83	DIODE 1SS83	
D210	8-719-300-80	DIODE RU-1C	
D211	8-719-300-80	DIODE RU-1C	
D212	8-719-911-19	DIODE 1SS119	
D213	8-719-911-19	DIODE 1SS119	
D214	8-719-911-19	DIODE 1SS119	
D215	8-719-911-19	DIODE 1SS119	
D216	8-719-911-19	DIODE 1SS119	
D301	8-719-911-19	DIODE 1SS119	
D302	8-719-911-19	DIODE 1SS119	
D303	8-719-911-19	DIODE 1SS119	
D304	8-719-911-19	DIODE 1SS119	
D305	8-719-911-19	DIODE 1SS119	
D306	8-719-911-19	DIODE 1SS119	
D307	8-719-911-19	DIODE 1SS119	
D308	8-719-911-19	DIODE 1SS119	
D309	8-719-901-83	DIODE 1SS83	
D310	8-719-300-80	DIODE RU-1C	
D311	8-719-300-80	DIODE RU-1C	
D312	8-719-911-19	DIODE 1SS119	
D313	8-719-911-19	DIODE 1SS119	
D314	8-719-911-19	DIODE 1SS119	
D315	8-719-911-19	DIODE 1SS119	
D316	8-719-911-19	DIODE 1SS119	

<IC>

IC1	8-759-745-58	IC NJM4558D

<TRANSISTOR>

Q1	8-729-384-48	TRANSISTOR 2SA844-E
Q12	8-729-200-17	TRANSISTOR 2SA1091-O
Q13	8-729-200-17	TRANSISTOR 2SA1091-O
Q101	8-729-266-82	TRANSISTOR 2SC2668-O
Q102	8-729-384-48	TRANSISTOR 2SA844-E
Q103	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q104	8-729-119-78	TRANSISTOR 2SC2785-HFE

BK

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q105	8-729-384-48	TRANSISTOR 2SA844-E	
Q106	8-729-804-63	TRANSISTOR 2SA1406-E	
Q107	8-729-804-58	TRANSISTOR 2SC3600-E	
Q108	8-729-804-58	TRANSISTOR 2SC3600-E	
Q109	8-729-804-63	TRANSISTOR 2SA1406-E	
Q110	8-729-804-58	TRANSISTOR 2SC3600-E	
Q111	8-729-804-63	TRANSISTOR 2SA1406-E	
Q112	8-729-255-12	TRANSISTOR 2SC2551-O	
Q113	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q114	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q115	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q201	8-729-266-82	TRANSISTOR 2SC2668-O	
Q202	8-729-384-48	TRANSISTOR 2SA844-E	
Q203	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q204	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q205	8-729-384-48	TRANSISTOR 2SA844-E	
Q206	8-729-804-63	TRANSISTOR 2SA1406-E	
Q207	8-729-804-58	TRANSISTOR 2SC3600-E	
Q208	8-729-804-58	TRANSISTOR 2SC3600-E	
Q209	8-729-804-63	TRANSISTOR 2SA1406-E	
Q210	8-729-804-58	TRANSISTOR 2SC3600-E	
Q211	8-729-804-63	TRANSISTOR 2SA1406-E	
Q212	8-729-255-12	TRANSISTOR 2SC2551-O	
Q213	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q214	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q215	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q301	8-729-266-82	TRANSISTOR 2SC2668-O	
Q302	8-729-384-48	TRANSISTOR 2SA844-E	
Q303	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q304	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q305	8-729-384-48	TRANSISTOR 2SA844-E	
Q306	8-729-804-63	TRANSISTOR 2SA1406-E	
Q307	8-729-804-58	TRANSISTOR 2SC3600-E	
Q308	8-729-804-58	TRANSISTOR 2SC3600-E	
Q309	8-729-804-63	TRANSISTOR 2SA1406-E	
Q310	8-729-804-58	TRANSISTOR 2SC3600-E	
Q311	8-729-804-63	TRANSISTOR 2SA1406-E	
Q312	8-729-255-12	TRANSISTOR 2SC2551-O	
Q313	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q314	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q315	8-729-119-78	TRANSISTOR 2SC2785-HFE	

<RESISTOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
R1	1-249-429-11	CARBON	10K	5%	1/4W	
R2	1-249-441-11	CARBON	100K	5%	1/4W	
R3	1-249-417-11	CARBON	1K	5%	1/4W	
R10	1-215-878-00	METAL OXIDE	33K	5%	1W	F
R11	1-249-439-11	CARBON	68K	5%	1/4W	
R12	1-249-417-11	CARBON	1K	5%	1/4W	
R13	1-249-429-11	CARBON	10K	5%	1/4W	
R14	1-215-469-91	METAL	100K	1%	1/4W	
R15	1-215-461-00	METAL	47K	1%	1/4W	
R16	1-215-447-00	METAL	12K	1%	1/4W	
R101	1-215-391-00	METAL	56	1%	1/4W	
R102	1-249-419-11	CARBON	1.5K	5%	1/4W	
R104	1-249-405-11	CARBON	100	5%	1/4W	
R105	1-249-424-11	CARBON	3.9K	5%	1/4W	
R106	1-249-422-11	CARBON	2.7K	5%	1/4W	
R107	1-249-405-11	CARBON	100	5%	1/4W	
R108	1-249-405-11	CARBON	100	5%	1/4W	
R109	1-249-421-11	CARBON	2.2K	5%	1/4W	
R110	1-249-405-11	CARBON	100	5%	1/4W	
R111	1-249-405-11	CARBON	100	5%	1/4W	
R112	1-215-391-00	METAL	56	1%	1/4W	
R113	1-215-391-00	METAL	56	1%	1/4W	
R114	1-215-437-91	METAL	4.7K	1%	1/4W	
R115	1-214-765-00	METAL	33K	1%	1/4W	
R116	1-214-765-00	METAL	33K	1%	1/4W	
R117	1-249-405-11	CARBON	100	5%	1/4W	
R118	1-214-956-00	METAL	470K	1%	1/4W	
R119	1-215-459-00	METAL	39K	1%	1/4W	
R120	1-216-430-11	METAL OXIDE	390	5%	1W	F
R121	1-249-405-11	CARBON	100	5%	1/4W	
R122	1-249-405-11	CARBON	100	5%	1/4W	
R123	1-215-405-00	METAL	220	1%	1/4W	
R124	1-249-405-11	CARBON	100	5%	1/4W	
R125	1-249-405-11	CARBON	100	5%	1/4W	
R126	1-215-394-00	METAL	75	1%	1/4W	
R127	1-215-394-00	METAL	75	1%	1/4W	
R128	1-214-779-00	METAL	120K	1%	1/4W	
R129	1-249-430-11	CARBON	12K	5%	1/4W	
R130	1-216-443-11	METAL OXIDE	56K	5%	1W	F
R131	1-249-433-11	CARBON	22K	5%	1/4W	
R132	1-249-422-11	CARBON	2.7K	5%	1/4W	
R133	1-249-435-11	CARBON	33K	5%	1/4W	
R134	1-249-433-11	CARBON	22K	5%	1/4W	
R135	1-249-426-11	CARBON	5.6K	5%	1/4W	
R136	1-249-423-11	CARBON	3.3K	5%	1/4W	
R137	1-247-903-00	CARBON	1M	5%	1/4W	
R138	1-249-426-11	CARBON	5.6K	5%	1/4W	
R139	1-215-441-00	METAL	6.8K	1%	1/4W	
R140	1-249-405-11	CARBON	100	5%	1/4W	
R141	1-249-413-11	CARBON	470	5%	1/4W	
R142	1-249-390-11	CARBON	5.6	5%	1/4W	
R143	1-249-422-11	CARBON	2.7K	5%	1/4W	
R201	1-215-391-00	METAL	56	1%	1/4W	
R202	1-249-419-11	CARBON	1.5K	5%	1/4W	
R204	1-249-405-11	CARBON	100	5%	1/4W	
R205	1-249-424-11	CARBON	3.9K	5%	1/4W	
R206	1-249-422-11	CARBON	2.7K	5%	1/4W	
R207	1-249-405-11	CARBON	100	5%	1/4W	
R208	1-249-405-11	CARBON	100	5%	1/4W	
R209	1-249-421-11	CARBON	2.2K	5%	1/4W	
R210	1-249-405-11	CARBON	100	5%	1/4W	
R211	1-249-405-11	CARBON	100	5%	1/4W	
R212	1-215-391-00	METAL	56	1%	1/4W	
R213	1-215-391-00	METAL	56	1%	1/4W	
R214	1-215-437-91	METAL	4.7K	1%	1/4W	
R215	1-214-765-00	METAL	33K	1%	1/4W	
R216	1-214-765-00	METAL	33K	1%	1/4W	
R217	1-249-405-11	CARBON	100	5%	1/4W	
R218	1-214-956-00	MWTAL	470K	1%	1/4W	
R219	1-215-459-00	MWTAL	39K	1%	1/4W	
R220	1-216-430-11	METAL OXIDE	390	5%	1W	F
R221	1-249-405-11	CARBON	100	5%	1/4W	
R222	1-249-405-11	CARBON	100	5%	1/4W	
R223	1-215-405-00	METAL	220	1%	1/4W	
R224	1-249-405-11	CARBON	100	5%	1/4W	
R225	1-249-405-11	CARBON	100	5%	1/4W	
R226	1-215-394-00	METAL	75	1%	1/4W	
R227	1-215-394-00	METAL	75	1%	1/4W	
R228	1-214-779-00	METAL	120K	1%	1/4W	
R229	1-249-430-11	CARBON	12K	5%	1/4W	
R230	1-216-443-11	METAL OXIDE	56K	5%	1W	F
R231	1-249-433-11	CARBON	22K	5%	1/4W	
R232	1-249-422-11	CARBON	2.7K	5%	1/4W	

BK BT

REF.NO.	PART NO.	DESCRIPTION				REMARK
R233	1-249-435-11	CARBON	33K	5%	1/4W	
R234	1-249-433-11	CARBON	22K	5%	1/4W	
R235	1-249-426-11	CARBON	5.6K	5%	1/4W	
R236	1-249-423-11	CARBON	3.3K	5%	1/4W	
R237	1-247-903-00	CARBON	1M	5%	1/4W	
R238	1-249-426-11	CARBON	5.6K	5%	1/4W	
R239	1-215-441-00	METAL	6.8K	1%	1/4W	
R240	1-249-405-11	CARBON	100	5%	1/4W	
R241	1-249-413-11	CARBON	470	5%	1/4W	
R242	1-249-390-11	CARBON	5.6	5%	1/4W	
R243	1-249-422-11	CARBON	2.7K	5%	1/4W	
R301	1-215-391-00	METAL	56	1%	1/4W	
R302	1-249-419-11	CARBON	1.5K	5%	1/4W	
R304	1-249-405-11	CARBON	100	5%	1/4W	
R305	1-249-424-11	CARBON	3.9K	5%	1/4W	
R306	1-249-422-11	CARBON	2.7K	5%	1/4W	
R307	1-249-405-11	CARBON	100	5%	1/4W	
R308	1-249-405-11	CARBON	100	5%	1/4W	
R309	1-249-421-11	CARBON	2.2K	5%	1/4W	
R310	1-249-405-11	CARBON	100	5%	1/4W	
R311	1-249-405-11	CARBON	100	5%	1/4W	
R312	1-215-391-00	METAL	56	1%	1/4W	
R313	1-215-391-00	METAL	56	1%	1/4W	
R314	1-215-437-91	METAL	4.7K	1%	1/4W	
R315	1-214-765-00	METAL	33K	1%	1/4W	
R316	1-214-765-00	METAL	33K	1%	1/4W	
R317	1-249-405-11	CARBON	100	5%	1/4W	
R318	1-214-956-00	MWTAL	470K	1%	1/4W	
R319	1-215-459-00	MWTAL	39K	1%	1/4W	
R320	1-216-430-11	METAL OXIDE	390	5%	1W	F
R321	1-249-405-11	CARBON	100	5%	1/4W	
R322	1-249-405-11	CARBON	100	5%	1/4W	
R323	1-215-405-00	METAL	220	1%	1/4W	
R324	1-249-405-11	CARBON	100	5%	1/4W	
R325	1-249-405-11	CARBON	100	5%	1/4W	
R326	1-215-394-00	METAL	75	1%	1/4W	
R327	1-215-394-00	METAL	75	1%	1/4W	
R328	1-214-779-00	METAL	120K	1%	1/4W	
R329	1-249-430-11	CARBON	12K	5%	1/4W	
R330	1-216-443-11	METAL OXIDE	56K	5%	1W	F
R331	1-249-433-11	CARBON	22K	5%	1/4W	
R332	1-249-422-11	CARBON	2.7K	5%	1/4W	
R333	1-249-435-11	CARBON	33K	5%	1/4W	
R334	1-249-433-11	CARBON	22K	5%	1/4W	
R335	1-249-426-11	CARBON	5.6K	5%	1/4W	
R336	1-249-423-11	CARBON	3.3K	5%	1/4W	
R337	1-247-903-00	CARBON	1M	5%	1/4W	
R338	1-249-426-11	CARBON	5.6K	5%	1/4W	
R339	1-215-441-00	METAL	6.8K	1%	1/4W	
R340	1-249-405-11	CARBON	100	5%	1/4W	
R341	1-249-413-11	CARBON	470	5%	1/4W	
R342	1-249-390-11	CARBON	5.6	5%	1/4W	
R343	1-249-422-11	CARBON	2.7K	5%	1/4W	

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*A-1135-606-B BT BOARD, COMPLETE (BVM-2811/3011 ONLY)
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*4-353-708-00 HOOK, FINGER

<CAPACITOR>

C1	1-124-477-11	ELECT	47MF	20%	16V
C3	1-124-477-11	ELECT	47MF	20%	16V

REF.NO.	PART NO.	DESCRIPTION			REMARK
C4	1-124-477-11	ELECT	47MF	20%	16V
C5	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C6	1-124-477-11	ELECT	47MF	20%	16V
C9	1-163-369-11	CERAMIC CHIP	47PF	5%	50V
C10	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C14	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C15	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C16	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C17	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C18	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C19	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C20	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C21	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C22	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C23	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C30	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C32	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C34	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C37	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C38	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C40	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C42	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C43	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C44	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C45	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C47	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C48	1-124-907-11	ELECT	10MF	20%	50V
C49	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C50	1-124-907-11	ELECT	10MF	20%	50V
C51	1-123-875-11	ELECT	10MF	20%	50V
C52	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C53	1-123-875-11	ELECT	10MF	20%	50V
C54	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C55	1-123-875-11	ELECT	10MF	20%	50V
C56	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C60	1-124-478-11	ELECT	100MF	20%	25V
C61	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C62	1-124-907-11	ELECT	10MF	20%	50V
C63	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C64	1-124-477-11	ELECT	47MF	20%	16V
C65	1-124-907-11	ELECT	10MF	20%	50V
C66	1-124-907-11	ELECT	10MF	20%	50V
C67	1-124-907-11	ELECT	10MF	20%	50V
C68	1-124-907-11	ELECT	10MF	20%	50V
C69	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C70	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C71	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C72	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C73	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C74	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C75	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C76	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C77	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C78	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C79	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C80	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C81	1-123-875-11	ELECT	10MF	20%	50V
C82	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C83	1-123-875-11	ELECT	10MF	20%	50V
C84	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C85	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C86	1-123-875-11	ELECT	10MF	20%	50V
C87	1-163-038-91	CERAMIC CHIP	0.1MF		25V

BT

REF.NO.	PART NO.	DESCRIPTION		REMARK
C88	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C89	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C90	1-124-907-11	ELECT 10MF	20%	50V
C100	1-124-478-11	ELECT 100MF	20%	25V
C101	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C102	1-124-907-11	ELECT 10MF	20%	50V
C103	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C104	1-124-477-11	ELECT 47MF	20%	16V
C105	1-124-907-11	ELECT 10MF	20%	50V
C106	1-124-907-11	ELECT 10MF	20%	50V
C107	1-124-907-11	ELECT 10MF	20%	50V
C108	1-124-907-11	ELECT 10MF	20%	50V
C109	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C110	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C111	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C112	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C113	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C114	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C115	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C116	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C117	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C118	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C119	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C331	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C332	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C333	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C334	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C335	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C336	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C337	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C338	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C339	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C341	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C342	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C343	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C344	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C345	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C346	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C347	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C348	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C349	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C361	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C362	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C363	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C364	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C365	1-135-092-21	TANTAL. CHIP 3.3MF	20%	16V
C366	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C367	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C368	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C369	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C501	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C502	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C503	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C504	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C505	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C506	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C507	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C508	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C509	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C510	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C511	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C512	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C513	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C514	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C515	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C516	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C517	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C518	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C519	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C520	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C521	1-163-038-91	CERAMIC CHIP 0.1MF		25V
C522	1-163-038-91	CERAMIC CHIP 0.1MF		25V

<TRIMMER>

CV1	1-141-304-21	TRIMMER, CERAMIC
CV2	1-141-304-21	TRIMMER, CERAMIC
CV3	1-141-304-21	TRIMMER, CERAMIC
CV4	1-141-304-21	TRIMMER, CERAMIC
CV5	1-141-304-21	TRIMMER, CERAMIC
CV6	1-141-304-21	TRIMMER, CERAMIC

<DIODE>

D1	8-719-104-34	DIODE 1S2836
D2	8-719-105-91	DIODE RD5.6M-B2
D3	8-719-400-18	DIODE MA152WK
D4	8-719-400-18	DIODE MA152WK
D5	8-719-400-18	DIODE MA152WK
D6	8-719-104-34	DIODE 1S2836
D7	8-719-400-18	DIODE MA152WK
D8	8-719-104-34	DIODE 1S2836
D9	8-719-104-34	DIODE 1S2836
D331	8-719-400-18	DIODE MA152WK
D341	8-719-400-18	DIODE MA152WK
D361	8-719-400-18	DIODE MA152WK

<DELAY LINE>

DL1	1-415-348-21	DELAY LINE
DL2	1-415-477-11	DELAY LINE
DL3	1-415-700-11	DELAY LINE
DL4	1-415-654-12	DELAY LINE
DL5	1-415-700-11	DELAY LINE
DL6	1-415-700-11	DELAY LINE
DL7	1-415-348-21	DELAY LINE
DL8	1-415-700-11	DELAY LINE
DL9	1-415-727-11	DELAY LINE

<FILTER>

FL1	1-236-562-11	FILTER, LOW PASS
FL2	1-236-561-11	FILTER, LOW PASS
FL3	1-236-732-11	FILTER, LOW PASS

<IC>

IC1	8-759-800-81	IC LA7016
IC2	8-759-800-81	IC LA7016
IC3	8-759-701-78	IC NJM7809FA
IC4	8-759-701-75	IC NJM7805FA
IC331	8-752-334-78	IC CXL1009P-1
IC341	8-752-334-78	IC CXL1009P-1
IC361	8-752-330-14	IC CXL1009P
IC501	8-752-053-68	IC CXA1539P

<IC SOCKET>

BT

REF.NO.	PART NO.	DESCRIPTION	REMARK
ICS331	1-526-656-00	SOCKET, IC (DP) 20P	
ICS341	1-526-656-00	SOCKET, IC (DP) 20P	
ICS361	1-526-656-00	SOCKET, IC (DP) 20P	
ICS501*	1-526-659-00	SOCKET, IC (DP) 28P	
		<COIL>	
L1	1-410-196-11	INDUCTOR CHIP 2.2UH	
L2	1-410-200-31	INDUCTOR CHIP 4.7UH	
L3	1-410-192-51	INDUCTOR CHIP 1UH	
L4	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L5	1-216-296-00	METAL GLAZE 0 5% 1/8W	
L6	1-410-196-11	INDUCTOR CHIP 2.2UH	
L7	1-410-470-11	INDUCTOR 10UH	
L8	1-410-470-11	INDUCTOR 10UH	
L9	1-410-204-31	INDUCTOR CHIP 10UH	
L10	1-408-419-00	INDUCTOR 68UH	
L11	1-410-200-31	INDUCTOR CHIP 4.7UH	
L12	1-410-200-31	INDUCTOR CHIP 4.7UH	
L13	1-410-196-11	INDUCTOR CHIP 2.2UH	
L14	1-410-204-31	INDUCTOR CHIP 10UH	
L15	1-410-216-31	INDUCTOR CHIP 100UH	
		<TRANSISTOR>	
Q1	8-729-216-22	TRANSISTOR 2SA1162-G	
Q2	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q3	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q4	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q5	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q6	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q7	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q8	8-729-216-22	TRANSISTOR 2SA1162-G	
Q9	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q10	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q11	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q12	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q13	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q14	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q15	8-729-216-22	TRANSISTOR 2SA1162-G	
Q16	8-729-107-46	TRANSISTOR 2SC3624A-L15	
Q17	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q18	8-729-216-22	TRANSISTOR 2SA1162-G	
Q19	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q20	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q21	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q22	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q23	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q24	8-729-216-22	TRANSISTOR 2SA1162-G	
Q25	8-729-107-46	TRANSISTOR 2SC3624A-L15	
Q32	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q33	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q34	8-729-216-22	TRANSISTOR 2SA1162-G	
Q35	8-729-216-22	TRANSISTOR 2SA1162-G	
Q36	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q37	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q38	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q39	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q40	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q41	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q42	8-729-216-22	TRANSISTOR 2SA1162-G	
Q43	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q44	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q45	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

REF.NO.	PART NO.	DESCRIPTION	REMARK
Q52	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q54	8-729-216-22	TRANSISTOR 2SA1162-G	
Q56	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q57	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q58	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q59	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q60	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q61	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q62	8-729-216-22	TRANSISTOR 2SA1162-G	
Q65	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q71	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q72	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q73	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q74	8-729-103-02	TRANSISTOR 2SA1226-T1E3	
Q81	8-729-901-06	TRANSISTOR DTA144EK	
Q82	8-729-901-01	TRANSISTOR DTC144EK	
Q83	8-729-901-06	TRANSISTOR DTA144EK	
Q84	8-729-901-06	TRANSISTOR DTA144EK	
Q85	8-729-140-97	TRANSISTOR 2SB734-34	
Q86	8-729-140-96	TRANSISTOR 2SD774-34	
		<RESISTOR>	
JW1	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW2	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW3	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW5	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW11	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW12	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW13	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW14	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JW15	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R1	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R2	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R3	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R4	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R5	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R6	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R7	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R8	1-216-643-11	METAL CHIP 470 0.50% 1/10W	
R9	1-216-661-11	METAL CHIP 2.7K 0.50% 1/10W	
R10	1-216-643-11	METAL CHIP 470 0.50% 1/10W	
R11	1-216-661-11	METAL CHIP 2.7K 0.50% 1/10W	
R12	1-216-675-91	METAL CHIP 10K 0.50% 1/10W	
R13	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R14	1-216-663-11	METAL CHIP 3.3K 0.50% 1/10W	
R15	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R16	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R17	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R18	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R19	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R20	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R21	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R22	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R23	1-216-635-11	METAL CHIP 220 0.50% 1/10W	
R24	1-216-635-11	METAL CHIP 220 0.50% 1/10W	
R25	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R26	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R27	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R28	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R29	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R30	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R31	1-216-025-00	METAL GLAZE 100 5% 1/10W	

BT

REF.NO.	PART NO.	DESCRIPTION				REMARK
R33	1-216-665-11	METAL CHIP	3.9K	0.50%	1/10W	
R34	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R35	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R36	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R37	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R38	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R39	1-216-635-11	METAL CHIP	220	0.50%	1/10W	
R40	1-216-630-11	METAL CHIP	130	0.50%	1/10W	
R41	1-216-630-11	METAL CHIP	130	0.50%	1/10W	
R42	1-216-635-11	METAL CHIP	220	0.50%	1/10W	
R43	1-216-067-91	METAL GLAZE	5.6K	5%	1/10W	
R44	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R45	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R46	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R47	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R48	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R49	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R50	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R51	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R52	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R53	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R54	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R55	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R56	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R57	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R58	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R59	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R60	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R61	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R62	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R63	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R64	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R65	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R66	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R67	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R68	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R69	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R70	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R71	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R72	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R73	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R74	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R75	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R76	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R77	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R78	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R79	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R80	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R81	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R82	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R83	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R84	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R85	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R86	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R87	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R88	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R89	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R103	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R104	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R105	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R106	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R108	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R109	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R110	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R111	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R112	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R113	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R114	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R115	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R116	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R117	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R118	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W	
R119	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R120	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R121	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W	
R122	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R123	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R124	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R125	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R126	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R127	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R128	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R129	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R130	1-216-659-11	METAL CHIP	2.2K	0.50%	1/10W	
R131	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R132	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R133	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R134	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R135	1-216-635-11	METAL CHIP	220	0.50%	1/10W	
R136	1-216-635-11	METAL CHIP	220	0.50%	1/10W	
R137	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R138	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R139	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R140	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R141	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R142	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R143	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R150	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R153	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R154	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R157	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R158	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R161	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R163	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R164	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R165	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R166	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R167	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R169	1-216-655-11	METAL CHIP	1.5K	0.50%	1/10W	
R170	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R171	1-216-657-11	METAL CHIP	1.8K	0.50%	1/10W	
R172	1-216-667-11	METAL CHIP	4.7K	0.50%	1/10W	
R173	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R174	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R175	1-216-655-11	METAL CHIP	1.5K	0.50%	1/10W	
R176	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R177	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R178	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R179	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R181	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R182	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R183	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R184	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R185	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R186	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R191	1-216-025-00	METAL GLAZE	100	5%	1/10W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R192	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R193	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R201	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R202	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R203	1-216-057-91	METAL GLAZE	2.2K	5%	1/10W	
R204	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R205	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R206	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R207	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R208	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R209	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R210	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R211	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R212	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R213	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R214	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R215	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R216	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R217	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R218	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R219	1-215-881-11	METAL OXIDE	15	5%	2W	F
R331	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R332	1-216-288-11	METAL GLAZE	5.6M	5%	1/8W	
R341	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R342	1-216-288-11	METAL GLAZE	5.6M	5%	1/8W	
R361	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R362	1-216-288-11	METAL GLAZE	5.6M	5%	1/8W	
R501	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R502	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

<VARIABLE RESISTOR>

RV1	1-237-515-21	RES, ADJ, CERMET 1K (Y/C MIX PHASE)
RV2	1-237-517-21	RES, ADJ, CERMET 5K (Y/C MIX LEVEL)
RV3	1-237-515-21	RES, ADJ, CERMET 1K (Y OUT LEVEL)
RV4	1-237-515-21	RES, ADJ, CERMET 1K (Y/C DELAY)
RV5	1-237-515-21	RES, ADJ, CERMET 1K (OH/1H MIX LEVEL)
RV6	1-237-517-21	RES, ADJ, CERMET 5K (S COMB C LEVEL)
RV7	1-237-515-21	RES, ADJ, CERMET 1K (S COMB C PHASE)
RV8	1-237-515-21	RES, ADJ, CERMET 1K (C OUT LEVEL)
RV9	1-237-516-21	RES, ADJ, CERMET 2K (1H Y LEVEL)
RV10	1-237-515-21	RES, ADJ, CERMET 1K (OH/1H MIX PHASE)
RV11	1-237-516-21	RES, ADJ, CERMET 2K (1H/2H MIX LEVEL)
RV12	1-237-515-21	RES, ADJ, CERMET 1K (1H/2H MIX PHASE)

<CRYSTAL>

X1	1-567-790-11	VIBRATOR, CRYSTAL

****

*A-1135-667-A		BV BOARD, COMPLETE (BVM-2811 ONLY)
		**********
		(INCLUDING BV1,BV2 BOARD)
*1-590-830-11		WIRE, FLAT TYPE (34 CORE)
4-031-835-01		SPACER, HEXAGON
9-911-840-XX		DAMPER, CASE (LOWER)

****

BV1 BOARD, COMPLETE (BVM-2811 ONLY)
****

<CAPACITOR>

REF.NO.	PART NO.	DESCRIPTION				REMARK
C1	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C2	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C3	1-163-239-11	CERAMIC CHIP	33PF		5%	50V
C101	1-163-243-11	CERAMIC CHIP	47PF		5%	50V
C102	1-163-243-11	CERAMIC CHIP	47PF		5%	50V
C103	1-124-779-00	ELECT	10MF		20%	16V
C104	1-124-779-00	ELECT	10MF		20%	16V
C105	1-216-295-00	METAL GLAZE	0	5%	1/10W	
C106	1-216-295-00	METAL GLAZE	0	5%	1/10W	
C107	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C108	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C109	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C110	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C111	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C112	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C113	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C201	1-163-243-11	CERAMIC CHIP	47PF		5%	50V
C202	1-163-243-11	CERAMIC CHIP	47PF		5%	50V
C203	1-124-779-00	ELECT	10MF		20%	16V
C204	1-124-779-00	ELECT	10MF		20%	16V
C205	1-216-295-00	METAL GLAZE	0	5%	1/10W	
C206	1-216-295-00	METAL GLAZE	0	5%	1/10W	
C207	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C208	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C209	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C210	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C211	1-163-038-91	CERAMIC CHIP	0.1MF			25V
C212	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C213	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C301	1-126-769-21	ELECT CHIP	100MF		20%	14V
C302	1-126-769-21	ELECT CHIP	100MF		20%	14V
C303	1-126-769-21	ELECT CHIP	100MF		20%	14V
C304	1-126-769-21	ELECT CHIP	100MF		20%	14V
C305	1-126-769-21	ELECT CHIP	100MF		20%	14V
C306	1-126-769-21	ELECT CHIP	100MF		20%	14V
C307	1-126-769-21	ELECT CHIP	100MF		20%	14V
C308	1-126-769-21	ELECT CHIP	100MF		20%	14V
C309	1-126-769-21	ELECT CHIP	100MF		20%	14V
C310	1-126-769-21	ELECT CHIP	100MF		20%	14V
C311	1-126-769-21	ELECT CHIP	100MF		20%	14V
C312	1-126-769-21	ELECT CHIP	100MF		20%	14V
C313	1-126-769-21	ELECT CHIP	100MF		20%	14V
C314	1-126-769-21	ELECT CHIP	100MF		20%	14V
C315	1-126-769-21	ELECT CHIP	100MF		20%	14V
C316	1-126-769-21	ELECT CHIP	100MF		20%	14V
C317	1-126-769-21	ELECT CHIP	100MF		20%	14V
C318	1-126-769-21	ELECT CHIP	100MF		20%	14V
C319	1-126-769-21	ELECT CHIP	100MF		20%	14V
C351	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C352	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C353	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C354	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C355	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C356	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C357	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C359	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C360	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C361	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C362	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C363	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C364	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C365	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C366	1-163-031-11	CERAMIC CHIP	0.01MF			50V
C367	1-163-031-11	CERAMIC CHIP	0.01MF			50V

BV1

REF.NO.	PART NO.	DESCRIPTION		REMARK
C368	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C369	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C370	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C371	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C372	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C373	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C374	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C375	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C376	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C377	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C378	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C379	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C380	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C381	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C382	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C383	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C384	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C385	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C386	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C387	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C388	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C389	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C401	1-126-769-21	ELECT CHIP 100MF	20%	14V
C402	1-126-769-21	ELECT CHIP 100MF	20%	14V
C451	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C452	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C453	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C501	1-126-193-11	ELECT 1MF	20%	50V

<CONNECTOR>

CN1	*1-566-044-11	PIN, CONNECTOR 5P	
CN2	*1-563-018-11	CONNECTOR, F.P.C 34P	
CN101	1-569-170-11	CONNECTOR, COAXIAL (SMALL TYPE)	
CN102	1-569-170-11	CONNECTOR, COAXIAL (SMALL TYPE)	
CN201	1-569-170-11	CONNECTOR, COAXIAL (SMALL TYPE)	
CN202	1-569-170-11	CONNECTOR, COAXIAL (SMALL TYPE)	

<FERRITE BEAD>

FB1	1-535-178-11	RES, FERRITE	
FB2	1-535-178-11	RES, FERRITE	
FB101	1-535-178-11	RES, FERRITE	
FB201	1-535-178-11	RES, FERRITE	

<IC>

IC1	8-759-011-65	IC MC74HC4053F	
IC2	8-759-011-65	IC MC74HC4053F	
IC3	8-759-011-65	IC MC74HC4053F	
IC4	8-759-011-65	IC MC74HC4053F	
IC5	8-759-011-65	IC MC74HC4053F	
IC6	8-759-990-68	IC 74F574SJ	
IC7	8-759-990-68	IC 74F574SJ	
IC8	8-759-037-28	IC MC10H350M	
IC9	8-759-037-28	IC MC10H350M	
IC10	8-759-037-28	IC MC10H350M	
IC11	8-759-164-99	IC CXD8069BG	
IC12	8-759-032-11	IC MC74HC04AF	
IC13	8-752-321-16	IC CXD1030M	
IC15	8-759-931-47	IC SN74LS628NS	
IC16	8-752-306-51	IC CX23065A	
IC17	8-759-948-01	IC 74F04SJ	
IC18	8-759-013-92	IC MC74HC164F	
IC19	8-759-032-14	IC MC74HC08AF	
IC20	8-759-013-94	IC MC74HC393F	
IC21	8-759-032-23	IC MC74HC74AF	
IC101	8-741-602-11	IC SBX1602A	
IC102	8-759-231-32	IC TC7S00F	
IC201	8-741-602-11	IC SBX1602A	
IC202	8-759-231-32	IC TC7S00F	
IC301	8-759-995-76	IC PST529C	

<IC SOCKET>

ICS11	1-540-084-11	SOCKET, IC (PGA TYPE)	
ICS101	*1-540-106-11	SOCKET, IC	
ICS201	*1-540-106-11	SOCKET, IC	

<COIL>

L301	1-408-421-00	INDUCTOR 100UH	

<TRANSISTOR>

Q1	8-729-901-01	TRANSISTOR DTC144EK	
Q101	8-729-101-11	TRANSISTOR 2SC2351-R2	
Q102	8-729-101-11	TRANSISTOR 2SC2351-R2	
Q103	8-729-216-22	TRANSISTOR 2SA1162-G	
Q104	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q201	8-729-101-11	TRANSISTOR 2SC2351-R2	
Q202	8-729-101-11	TRANSISTOR 2SC2351-R2	
Q203	8-729-216-22	TRANSISTOR 2SA1162-G	
Q204	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q301	8-729-901-06	TRANSISTOR DTA144EK	

<RESISTOR>

R1	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R2	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R3	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R4	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R5	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R6	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R7	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R8	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R9	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R10	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R11	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R12	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R13	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R14	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R15	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R16	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R17	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R18	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R19	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R20	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R21	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R22	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R23	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R24	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R25	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R26	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R27	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R28	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R29	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R30	1-216-049-00	METAL GLAZE	1K	5%	1/10W

BV1 **BV2**

REF.NO.	PART NO.	DESCRIPTION				REMARK
R51	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R52	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R53	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R54	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R55	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R61	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R62	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R63	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R64	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R65	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R66	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R67	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R68	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R69	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R70	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R71	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R72	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R73	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R74	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R75	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R76	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R77	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R78	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R79	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R80	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R101	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R103	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R104	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R105	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R109	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R110	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R111	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R112	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R113	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R114	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R115	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R116	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R117	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R118	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R119	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R120	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R121	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R122	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R123	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R124	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R125	1-216-067-91	METAL GLAZE	5.6K	5%	1/10W	
R126	1-216-064-00	METAL GLAZE	4.3K	5%	1/10W	
R127	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R128	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R129	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R130	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R131	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R132	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R133	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R134	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R135	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R136	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R138	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R139	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R140	1-218-753-11	METAL CHIP	110K	0.50%	1/10W	
R141	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R201	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R203	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R204	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R205	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R207	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R209	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R210	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R211	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R212	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R213	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R214	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R215	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R216	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R217	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R218	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R219	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R220	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R221	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R222	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R223	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R224	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R225	1-216-067-91	METAL GLAZE	5.6K	5%	1/10W	
R226	1-216-064-00	METAL GLAZE	4.3K	5%	1/10W	
R227	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R228	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R229	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R230	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R231	1-216-624-11	METAL CHIP	75	0.50%	1/10W	
R232	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R233	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R234	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R235	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R236	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R238	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R239	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R240	1-218-753-11	METAL CHIP	110K	0.50%	1/10W	
R241	1-216-295-00	METAL GLAZE	0	5%	1/10W	

<VARIABLE RESISTOR>

RV101	1-237-517-21	RES, ADJ, CERMET 5K	
RV201	1-237-517-21	RES, ADJ, CERMET 5K	

<SWITCH>

S1	1-570-857-11	SWITCH, SLIDE	

****

BV2 BOARD, COMPLETE (BVM-2811 ONLY)
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*4-353-708-00	HOOK, FINGER		

<CAOPACITOR>

C1	1-124-779-00	ELECT	10MF	20%	16V
C2	1-124-779-00	ELECT	10MF	20%	16V
C3	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C4	1-163-362-11	CERAMIC CHIP	24PF	5%	50V
C5	1-163-088-00	CERAMIC CHIP	5PF	0.25PF	50V
C6	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C7	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C9	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C10	1-126-204-11	ELECT	47MF	20%	16V
C21	1-163-038-91	CERAMIC CHIP	0.1MF		25V

BV2

REF.NO.	PART NO.	DESCRIPTION			REMARK
C22	1-126-193-11	ELECT	1MF	20%	50V
C23	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C31	1-126-204-11	ELECT	47MF	20%	16V
C32	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C33	1-126-204-11	ELECT	47MF	20%	16V
C34	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C35	1-124-779-00	ELECT	10MF	20%	16V
C36	1-124-779-00	ELECT	10MF	20%	16V
C37	1-124-779-00	ELECT	10MF	20%	16V
C38	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C39	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C40	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C41	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C42	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C43	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C44	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C45	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C46	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C50	1-126-204-11	ELECT	47MF	20%	16V
C51	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C52	1-126-204-11	ELECT	47MF	20%	16V
C53	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C54	1-124-779-00	ELECT	10MF	20%	16V
C55	1-124-779-00	ELECT	10MF	20%	16V
C56	1-124-779-00	ELECT	10MF	20%	16V
C57	1-124-779-00	ELECT	10MF	20%	16V
C58	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C59	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C60	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C61	1-126-204-11	ELECT	47MF	20%	16V
C62	1-124-779-00	ELECT	10MF	20%	16V
C63	1-124-779-00	ELECT	10MF	20%	16V
C64	1-124-779-00	ELECT	10MF	20%	16V
C71	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C72	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C73	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C74	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C75	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C76	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C77	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C78	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C79	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C81	1-126-204-11	ELECT	47MF	20%	16V
C82	1-124-779-00	ELECT	10MF	20%	16V
C83	1-124-779-00	ELECT	10MF	20%	16V
C84	1-124-779-00	ELECT	10MF	20%	16V
C91	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C92	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C93	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C94	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C95	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C96	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C97	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C98	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C99	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C101	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C102	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C103	1-126-204-11	ELECT	47MF	20%	16V
C104	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C111	1-126-204-11	ELECT	47MF	20%	16V
C112	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C114	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C115	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C201	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C202	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C203	1-126-204-11	ELECT	47MF	20%	16V
C204	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C211	1-126-204-11	ELECT	47MF	20%	16V
C212	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C214	1-163-087-00	CERAMIC CHIP	4PF	0.25PF	50V
C215	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C301	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C302	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C303	1-126-204-11	ELECT	47MF	20%	16V
C304	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C311	1-126-204-11	ELECT	47MF	20%	16V

<CONNECTOR>

CN1	*1-563-018-11	CONNECTOR, F.P.C 34P	
CN2	*1-566-044-11	PIN, CONNECTOR 5P	
CN3	*1-566-044-11	PIN, CONNECTOR 5P	
CN4	*1-566-043-11	PIN, CONNECTOR 4P	

<TRIMMER>

CV301	1-141-260-00	TRIMAR, CERAMIC

<DIODE>

D11	8-719-104-34	DIODE 1S2836
D12	8-719-104-34	DIODE 1S2836
D13	8-719-104-34	DIODE 1S2836
D14	8-719-104-34	DIODE 1S2836
D15	8-719-400-18	DIODE MA152WK
D18	8-719-104-34	DIODE 1S2836
D21	8-719-400-18	DIODE MA152WK
D22	8-719-400-18	DIODE MA152WK
D101	8-719-104-34	DIODE 1S2836
D201	8-719-104-34	DIODE 1S2836
D301	8-719-105-91	DIODE RD5.6M-B2
D302	8-719-104-34	DIODE 1S2836

<FERRITE BEAD>

FB1	1-535-178-11	RES, FERRITE
FB2	1-535-178-11	RES, FERRITE

<IC>

IC1	8-759-038-00	IC MC74HC574AF
IC2	8-759-038-00	IC MC74HC574AF
IC3	8-759-038-00	IC MC74HC574AF
IC4	8-759-918-33	IC CX20160
IC5	8-759-918-33	IC CX20160
IC6	8-759-918-33	IC CX20160
IC11	8-759-300-71	IC HD14053BFP
IC51	8-759-701-75	IC NJM7805FA
IC101	8-759-420-96	IC AN8140K
IC102	8-759-603-24	IC CX20197
IC201	8-759-420-96	IC AN8140K
IC202	8-759-603-24	IC CX20197
IC301	8-759-420-96	IC AN8140K

<COIL>

L1	1-410-212-51	INDUCTOR CHIP 47UH

REF.NO.	PART NO.	DESCRIPTION	REMARK
L2	1-410-946-31	INDUCTOR CHIP 22UH	
		<FILTER>	
LPF101	1-239-075-11	FILTER, LOW PASS	
LPF201	1-239-075-11	FILTER, LOW PASS	
LPF301	1-239-076-11	FILTER, LOW PASS	
		<TRANSISTOR>	
Q11	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q12	8-729-216-22	TRANSISTOR 2SA1162-G	
Q13	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q14	8-729-901-01	TRANSISTOR DTC144EK	
Q15	8-729-901-01	TRANSISTOR DTC144EK	
Q16	8-729-107-46	TRANSISTOR 2SC3624A-L15	
Q17	8-729-901-01	TRANSISTOR DTC144EK	
Q18	8-729-901-01	TRANSISTOR DTC144EK	
Q21	8-729-901-06	TRANSISTOR DTA144EK	
Q22	8-729-901-01	TRANSISTOR DTC144EK	
Q23	8-729-216-22	TRANSISTOR 2SA1162-G	
Q24	8-729-901-01	TRANSISTOR DTC144EK	
Q101	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q102	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q103	8-729-216-22	TRANSISTOR 2SA1162-G	
Q104	8-729-216-22	TRANSISTOR 2SA1162-G	
Q105	8-729-107-46	TRANSISTOR 2SC3624A-L15	
Q201	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q202	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q203	8-729-216-22	TRANSISTOR 2SA1162-G	
Q204	8-729-216-22	TRANSISTOR 2SA1162-G	
Q205	8-729-107-46	TRANSISTOR 2SC3624A-L15	
Q301	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q302	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q303	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q304	8-729-122-63	TRANSISTOR 2SA1226-E4	
Q305	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q306	8-729-122-63	TRANSISTOR 2SA1226-E4	
Q307	8-729-107-46	TRANSISTOR 2SC3624A-L15	
		<RESISTOR>	
R1	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R2	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R3	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R4	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R5	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R6	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R7	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R8	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R11	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R12	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R13	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R14	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R15	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R16	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R17	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R22	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R23	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R24	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R25	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R26	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R101	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R102	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R103	1-216-643-11	METAL CHIP 470 0.50% 1/10W	
R104	1-216-624-11	METAL CHIP 75 0.50% 1/10W	
R111	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R112	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R113	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R114	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R115	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R116	1-216-639-11	METAL CHIP 330 0.50% 1/10W	
R117	1-216-639-11	METAL CHIP 330 0.50% 1/10W	
R118	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R119	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R120	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R121	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R122	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R123	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R124	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R125	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R126	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R201	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R202	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R203	1-216-643-11	METAL CHIP 470 0.50% 1/10W	
R204	1-216-624-11	METAL CHIP 75 0.50% 1/10W	
R211	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R212	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R213	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R214	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R215	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R216	1-216-639-11	METAL CHIP 330 0.50% 1/10W	
R217	1-216-639-11	METAL CHIP 330 0.50% 1/10W	
R218	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R219	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R220	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R221	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R222	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R223	1-216-057-91	METAL GLAZE 2.2K 5% 1/10W	
R224	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R225	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R226	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R301	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R302	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R303	1-216-643-11	METAL CHIP 470 0.50% 1/10W	
R304	1-216-624-11	METAL CHIP 75 0.50% 1/10W	
R311	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R312	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R313	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R314	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R315	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R316	1-216-639-11	METAL CHIP 330 0.50% 1/10W	
R317	1-216-639-11	METAL CHIP 330 0.50% 1/10W	
R318	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R319	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R320	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R321	1-216-651-11	METAL CHIP 1K 0.50% 1/10W	
R322	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R323	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R324	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R325	1-216-019-00	METAL GLAZE 56 5% 1/10W	
R326	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R327	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R328	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R329	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R330	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R331	1-216-025-00	METAL GLAZE 100 5% 1/10W	

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

BV2 C DA

REF.NO.	PART NO.	DESCRIPTION				REMARK
		<VARIABLE RESISTOR>				
RV101	1-237-517-21	RES, ADJ, CERMET 5K				
RV102	1-237-517-21	RES, ADJ, CERMET 5K				
RV201	1-237-517-21	RES, ADJ, CERMET 5K				
RV202	1-237-516-21	RES, ADJ, CERMET 2K				
RV301	1-237-517-21	RES, ADJ, CERMET 5K				
		<SWITCH>				
S1	1-570-851-11	SWITCH, SLIDE				
S2	1-570-851-11	SWITCH, SLIDE				
**********						
	*A-1331-286-A	C BOARD, COMPLETE				
		**********				
⚠	1-526-771-11	SOCKET, CRT				
	1-556-880-81	LEAD ASSY, HIGH-VOLTAGE				
		<CAPACITOR>				
C1	1-162-114-00	CERAMIC	0.0047MF			2KV
C2	1-162-114-00	CERAMIC	0.0047MF			2KV
		<CONNECTOR>				
C1	*1-566-054-11	PIN, CONNECTOR 2P				
C2	*1-566-056-11	PIN, CONNECTOR 4P				
C3	*1-566-054-11	PIN, CONNECTOR 2P				
C4	*1-566-056-11	PIN, CONNECTOR 4P				
C5	*1-566-054-11	PIN, CONNECTOR 2P				
C6	*1-566-056-11	PIN, CONNECTOR 4P				
C7	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P				
C8	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P				
C9	*1-566-054-11	PIN, CONNECTOR 2P				
		<COIL>				
L1	1-408-408-00	INDUCTOR	8.2UH			
L2	1-408-408-00	INDUCTOR	8.2UH			
L3	1-408-408-00	INDUCTOR	8.2UH			
		<RESISTOR>				
R1	1-202-818-00	SOLID	1K	10%	1/2W	
R2	1-202-818-00	SOLID	1K	10%	1/2W	
R3	1-202-818-00	SOLID	1K	10%	1/2W	
R4	1-249-431-11	CARBON	15K	5%	1/4W	
R5	1-202-818-00	SOLID	1K	10%	1/2W	
R6	1-202-818-00	SOLID	1K	10%	1/2W	
R7	1-202-818-00	SOLID	1K	10%	1/2W	
R8	1-249-431-11	CARBON	15K	5%	1/4W	
R9	1-202-818-00	SOLID	1K	10%	1/2W	
R10	1-202-818-00	SOLID	1K	10%	1/2W	
R11	1-202-818-00	SOLID	1K	10%	1/2W	
R12	1-249-431-11	CARBON	15K	5%	1/4W	
R13	1-202-818-00	SOLID	1K	10%	1/2W	
R14	1-202-719-00	SOLID	1M	10%	1/2W	
R15	1-216-376-00	METAL OXIDE	3.9	5%	2W	F
		<SPARK GAP>				
SG1	1-519-422-11	GAP, SPARK				
SG2	1-519-422-11	GAP, SPARK				
SG3	1-519-422-11	GAP, SPARK				
SG4	1-519-422-11	GAP, SPARK				
SG5	1-519-422-11	GAP, SPARK				
SG6	1-519-422-11	GAP, SPARK				
SG7	1-519-422-11	GAP, SPARK				
**********						
	*A-1346-152-A	DA BOARD, COMPLETE				
		**********				
	3-618-225-03	NUT, PLATE				
		<CAPACITOR>				
C1	1-126-157-11	ELECT	10MF	20%	16V	
C2	1-126-157-11	ELECT	10MF	20%	16V	
C3	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C4	1-101-361-00	CERAMIC	150PF	5%	50V	
C5	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C6	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C7	1-101-361-00	CERAMIC	150PF	5%	50V	
C8	1-102-527-11	CERAMIC	82PF	5%	50V	
C9	1-101-361-00	CERAMIC	150PF	5%	50V	
C10	1-106-359-00	MYLAR	0.0047MF	5%	100V	
C11	1-130-738-00	FILM	0.015MF	5%	100V	
C12	1-163-157-00	FILM	0.022MF	5%	50V	
C13	1-136-155-00	FILM	0.015MF	5%	50V	
C14	1-163-157-00	FILM	0.022MF	5%	50V	
C15	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C16	1-124-589-11	ELECT	47MF	20%	16V	
C17	1-124-234-00	ELECT	22MF	20%	16V	
C18	1-124-234-00	ELECT	22MF	20%	16V	
C19	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C20	1-130-871-11	FILM	0.01MF	5%	50V	
C21	1-126-301-11	ELECT	1MF	20%	50V	
C22	1-130-871-11	FILM	0.01MF	5%	50V	
C23	1-126-301-11	ELECT	1MF	20%	50V	
C24	1-126-301-11	ELECT	1MF	20%	50V	
C25	1-126-301-11	ELECT	1MF	20%	50V	
C26	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C27	1-126-157-11	ELECT	10MF	20%	16V	
C28	1-126-157-11	ELECT	10MF	20%	16V	
C29	1-126-301-11	ELECT	1MF	20%	50V	
C30	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C31	1-102-973-00	CERAMIC	100PF	5%	50V	
C32	1-101-361-00	CERAMIC	150PF	5%	50V	
C33	1-130-871-11	FILM	0.01MF	5%	50V	
C34	1-126-301-11	ELECT	1MF	20%	50V	
C35	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C36	1-102-824-00	CERAMIC	470PF	5%	50V	
C38	1-102-824-00	CERAMIC	470PF	5%	50V	
C39	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C40	1-130-871-11	FILM	0.01MF	5%	50V	
C41	1-126-301-11	ELECT	1MF	20%	50V	
C42	1-130-871-11	FILM	0.01MF	5%	50V	
C43	1-126-301-11	ELECT	1MF	20%	50V	
C44	1-124-465-00	ELECT	0.47MF	20%	50V	
C45	1-126-157-11	ELECT	10MF	20%	16V	
C46	1-126-157-11	ELECT	10MF	20%	16V	
C47	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C48	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C49	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C50	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C51	1-161-051-00	CERAMIC	0.01MF	10%	50V	

⚠ および ▒▒ 印の部品は,安全性を維持するために,重要な部品です。従って交換時は,必ず指定の部品を使用して下さい。

REF.NO.	PART NO.	DESCRIPTION			REMARK
C52	1-161-051-00	CERAMIC	0.01MF	10%	50V
C53	1-161-051-00	CERAMIC	0.01MF	10%	50V
C54	1-126-157-11	ELECT	10MF	20%	16V
C55	1-126-157-11	ELECT	10MF	20%	16V
C56	1-161-051-00	CERAMIC	0.01MF	10%	50V
C57	1-136-474-11	FILM	0.1MF	5%	100V
C58	1-130-871-11	FILM	0.01MF	5%	50V
C59	1-161-051-00	CERAMIC	0.01MF	10%	50V
C60	1-130-871-11	FILM	0.01MF	5%	50V
C61	1-161-051-00	CERAMIC	0.01MF	10%	50V
C62	1-130-871-11	FILM	0.01MF	5%	50V
C63	1-161-051-00	CERAMIC	0.01MF	10%	50V
C64	1-130-871-11	FILM	0.01MF	5%	50V
C65	1-161-051-00	CERAMIC	0.01MF	10%	50V
C66	1-161-051-00	CERAMIC	0.01MF	10%	50V
C67	1-126-163-11	ELECT	4.7MF	20%	25V
C68	1-101-361-00	CERAMIC	150PF	5%	50V
C69	1-126-157-11	ELECT	10MF	20%	16V
C70	1-126-157-11	ELECT	10MF	20%	16V
C71	1-126-157-11	ELECT	10MF	20%	16V
C72	1-126-157-11	ELECT	10MF	20%	16V
C73	1-161-051-00	CERAMIC	0.01MF	10%	50V
C74	1-126-157-11	ELECT	10MF	20%	16V
C75	1-126-157-11	ELECT	10MF	20%	16V
C76	1-136-165-00	FILM	0.1MF	5%	50V
C77	1-136-165-00	FILM	0.1MF	5%	50V
C78	1-161-051-00	CERAMIC	0.01MF	10%	50V
C80	1-101-004-00	CERAMIC	0.01MF		50V
C90	1-136-161-00	FILM	0.047MF	5%	50V
C100	1-136-165-00	FILM	0.1MF	5%	50V
C101	1-136-165-00	FILM	0.1MF	5%	50V
C102	1-102-978-00	CERAMIC	220PF	5%	50V

<DIODE>

D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D3	8-719-109-97	DIODE RD6.8ESB2
D4	8-719-109-97	DIODE RD6.8ESB2
D5	8-719-110-31	DIODE RD12ESB2
D6	8-719-110-31	DIODE RD12ESB2
D7	8-719-911-19	DIODE 1SS119
D8	8-719-911-19	DIODE 1SS119
D9	8-719-110-03	DIODE RD7.5ESB2
D10	8-719-110-03	DIODE RD7.5ESB2
D11	8-719-110-41	DIODE RD15ESB2
D12	8-719-109-89	DIODE RD5.6ESB2
D13	8-719-911-19	DIODE 1SS119
D14	8-719-911-19	DIODE 1SS119
D15	8-719-911-19	DIODE 1SS119
D18	8-719-911-19	DIODE 1SS119
D19	8-719-911-19	DIODE 1SS119
D31	8-719-911-19	DIODE 1SS119

<CONNECTOR>

DA1	*1-566-060-11	PIN, CONNECTOR 8P
DA2	*1-566-056-11	PIN, CONNECTOR 4P
DA3	*1-566-062-11	PIN, CONNECTOR 10P
DA4	*1-566-058-11	PIN, CONNECTOR 6P
DA5	*1-566-055-11	PIN, CONNECTOR 3P
DA6	*1-566-058-11	PIN, CONNECTOR 6P
DA7	*1-566-056-11	PIN, CONNECTOR 4P

REF.NO.	PART NO.	DESCRIPTION	REMARK

<IC>

IC1	8-759-984-27	IC MB84027B
IC2	8-759-040-11	IC MC14011BCP
IC3	8-759-000-58	IC MC14093BCP
IC4	8-751-580-00	IC CX-158
IC5	8-759-503-91	IC TL082ACP
IC6	8-759-503-91	IC TL082ACP
IC7	8-759-014-96	IC MC1496P
IC8	8-759-729-03	IC NJM2903D
IC9	8-759-503-91	IC TL082ACP
IC10	8-759-729-03	IC NJM2903D
IC11	8-759-503-91	IC TL082ACP
IC12	8-759-014-96	IC MC1496P
IC13	8-759-000-49	IC MC14066BCP
IC14	8-759-000-49	IC MC14066BCP
IC15	8-759-000-49	IC MC14066BCP
IC16	8-759-000-49	IC MC14066BCP
IC17	8-759-745-58	IC NJM4558D
IC18	8-759-909-70	IC CX23025
IC19	8-759-745-58	IC NJM4558D
IC20	8-759-745-58	IC NJM4558D
IC21	8-759-745-58	IC NJM4558D
IC22	8-759-745-58	IC NJM4558D
IC23	8-759-745-58	IC NJM4558D
IC24	8-759-929-62	IC LM7812CT
IC25	8-759-929-65	IC LM7912CT
IC26	8-759-503-91	IC TL082ACP

<COIL>

L1	1-407-504-00	INDUCTOR	10MMH

<TRANSISTOR>

Q1	8-729-900-89	TRANSISTOR DTC144ES
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q6	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q9	8-729-800-10	TRANSISTOR 2SC3068
Q10	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q12	8-729-900-89	TRANSISTOR DTC144ES
Q13	8-729-900-89	TRANSISTOR DTC144ES
Q14	8-729-900-89	TRANSISTOR DTC144ES
Q15	8-729-900-89	TRANSISTOR DTC144ES
Q16	8-729-900-89	TRANSISTOR DTC144ES
Q17	8-729-900-89	TRANSISTOR DTC144ES
Q18	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q19	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q20	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q23	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q24	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q31	8-729-900-89	TRANSISTOR DTC144ES
Q32	8-729-900-89	TRANSISTOR DTC144ES

<RESISTOR>

DA

REF.NO.	PART NO.	DESCRIPTION				REMARK
R1	1-215-461-00	METAL	47K	1%	1/4W	
R2	1-249-417-11	CARBON	1K	5%	1/4W	
R3	1-249-430-11	CARBON	12K	5%	1/4W	
R4	1-249-417-11	CARBON	1K	5%	1/4W	
R5	1-249-422-11	CARBON	2.7K	5%	1/4W	
R6	1-247-840-00	CARBON	2.4K	5%	1/4W	
R7	1-215-462-00	METAL	51K	1%	1/4W	
R8	1-249-417-11	CARBON	1K	5%	1/4W	
R9	1-249-417-11	CARBON	1K	5%	1/4W	
R10	1-249-423-11	CARBON	3.3K	5%	1/4W	
R11	1-249-419-11	CARBON	1.5K	5%	1/4W	
R12	1-249-429-11	CARBON	10K	5%	1/4W	
R13	1-249-424-11	CARBON	3.9K	5%	1/4W	
R14	1-249-419-11	CARBON	1.5K	5%	1/4W	
R15	1-249-410-11	CARBON	270	5%	1/4W	
R16	1-249-417-11	CARBON	1K	5%	1/4W	
R17	1-215-427-00	METAL	1.8K	1%	1/4W	
R18	1-215-435-00	METAL	3.9K	1%	1/4W	
R19	1-215-443-00	METAL	8.2K	1%	1/4W	
R20	1-249-400-11	CARBON	39	5%	1/4W	F
R21	1-249-429-11	CARBON	10K	5%	1/4W	
R22	1-215-445-00	METAL	10K	1%	1/4W	
R23	1-249-429-11	CARBON	10K	5%	1/4W	
R24	1-249-427-11	CARBON	6.8K	5%	1/4W	
R25	1-249-393-11	CARBON	10	5%	1/4W	
R26	1-215-439-00	METAL	5.6K	1%	1/4W	
R27	1-249-429-11	CARBON	10K	5%	1/4W	
R28	1-215-421-00	METAL	1K	1%	1/4W	
R29	1-215-458-00	METAL	36K	1%	1/4W	
R30	1-249-429-11	CARBON	10K	5%	1/4W	
R31	1-249-427-11	CARBON	6.8K	5%	1/4W	
R32	1-249-393-11	CARBON	10	5%	1/4W	
R33	1-249-425-11	CARBON	4.7K	5%	1/4W	
R34	1-249-424-11	CARBON	3.9K	5%	1/4W	
R35	1-247-800-11	CARBON	51	5%	1/4W	
R36	1-249-417-11	CARBON	1K	5%	1/4W	
R37	1-249-417-11	CARBON	1K	5%	1/4W	
R38	1-249-417-11	CARBON	1K	5%	1/4W	
R39	1-249-417-11	CARBON	1K	5%	1/4W	
R40	1-249-417-11	CARBON	1K	5%	1/4W	
R41	1-247-800-11	CARBON	51	5%	1/4W	
R42	1-249-430-11	CARBON	12K	5%	1/4W	
R43	1-249-419-11	CARBON	1.5K	5%	1/4W	
R44	1-249-424-11	CARBON	3.9K	5%	1/4W	
R45	1-249-429-11	CARBON	10K	5%	1/4W	
R46	1-249-429-11	CARBON	10K	5%	1/4W	
R47	1-249-431-11	CARBON	15K	5%	1/4W	
R48	1-249-429-11	CARBON	10K	5%	1/4W	
R49	1-249-429-11	CARBON	10K	5%	1/4W	
R50	1-249-429-11	CARBON	10K	5%	1/4W	
R51	1-249-429-11	CARBON	10K	5%	1/4W	
R52	1-249-417-11	CARBON	1K	5%	1/4W	
R53	1-247-903-00	CARBON	1M	5%	1/4W	
R54	1-249-421-11	CARBON	2.2K	5%	1/4W	
R55	1-249-417-11	CARBON	1K	5%	1/4W	
R56	1-249-435-11	CARBON	33K	5%	1/4W	
R57	1-249-429-11	CARBON	10K	5%	1/4W	
R58	1-249-423-11	CARBON	3.3K	5%	1/4W	
R59	1-249-429-11	CARBON	10K	5%	1/4W	
R60	1-215-445-00	METAL	10K	1%	1/4W	
R61	1-249-429-11	CARBON	10K	5%	1/4W	
R62	1-249-427-11	CARBON	6.8K	5%	1/4W	
R63	1-249-393-11	CARBON	10	5%	1/4W	
R64	1-249-429-11	CARBON	10K	5%	1/4W	
R65	1-249-433-11	CARBON	22K	5%	1/4W	
R66	1-249-433-11	CARBON	22K	5%	1/4W	
R67	1-249-429-11	CARBON	10K	5%	1/4W	
R68	1-247-903-00	CARBON	1M	5%	1/4W	
R69	1-249-421-11	CARBON	2.2K	5%	1/4W	
R70	1-249-435-11	CARBON	33K	5%	1/4W	
R71	1-249-429-11	CARBON	10K	5%	1/4W	
R72	1-249-423-11	CARBON	3.3K	5%	1/4W	
R74	1-249-429-11	CARBON	10K	5%	1/4W	
R76	1-249-433-11	CARBON	22K	5%	1/4W	
R77	1-249-439-11	CARBON	68K	5%	1/4W	
R79	1-249-421-11	CARBON	2.2K	5%	1/4W	
R80	1-249-435-11	CARBON	33K	5%	1/4W	
R81	1-249-429-11	CARBON	10K	5%	1/4W	
R82	1-249-423-11	CARBON	3.3K	5%	1/4W	
R83	1-249-429-11	CARBON	10K	5%	1/4W	
R84	1-215-445-00	METAL	10K	1%	1/4W	
R85	1-249-427-11	CARBON	6.8K	5%	1/4W	
R86	1-249-429-11	CARBON	10K	5%	1/4W	
R87	1-249-393-11	CARBON	10	5%	1/4W	
R88	1-249-429-11	CARBON	10K	5%	1/4W	
R89	1-249-429-11	CARBON	10K	5%	1/4W	
R90	1-249-417-11	CARBON	1K	5%	1/4W	
R91	1-249-429-11	CARBON	10K	5%	1/4W	
R92	1-249-435-11	CARBON	33K	5%	1/4W	
R93	1-249-393-11	CARBON	10	5%	1/4W	
R94	1-247-848-11	CARBON	5.1K	5%	1/4W	
R95	1-249-417-11	CARBON	1K	5%	1/4W	
R96	1-249-429-11	CARBON	10K	5%	1/4W	
R97	1-249-433-11	CARBON	22K	5%	1/4W	
R98	1-249-409-11	CARBON	220	5%	1/4W	
R99	1-249-405-11	CARBON	100	5%	1/4W	
R100	1-249-417-11	CARBON	1K	5%	1/4W	
R101	1-249-405-11	CARBON	100	5%	1/4W	
R102	1-249-430-11	CARBON	12K	5%	1/4W	
R103	1-249-424-11	CARBON	3.9K	5%	1/4W	
R104	1-247-800-11	CARBON	51	5%	1/4W	
R105	1-249-417-11	CARBON	1K	5%	1/4W	
R106	1-249-417-11	CARBON	1K	5%	1/4W	
R107	1-249-424-11	CARBON	3.9K	5%	1/4W	
R109	1-249-437-11	CARBON	47K	5%	1/4W	
R110	1-249-430-11	CARBON	12K	5%	1/4W	
R111	1-249-437-11	CARBON	47K	5%	1/4W	
R112	1-249-426-11	CARBON	5.6K	5%	1/4W	
R113	1-249-430-11	CARBON	12K	5%	1/4W	
R114	1-249-437-11	CARBON	47K	5%	1/4W	
R115	1-249-413-11	CARBON	470	5%	1/4W	
R116	1-249-413-11	CARBON	470	5%	1/4W	
R123	1-215-445-00	METAL	10K	1%	1/4W	
R124	1-215-433-00	METAL	3.3K	1%	1/4W	
R125	1-215-443-00	METAL	8.2K	1%	1/4W	
R126	1-215-437-91	METAL	4.7K	1%	1/4W	
R127	1-249-417-11	CARBON	1K	5%	1/4W	
R128	1-249-417-11	CARBON	1K	5%	1/4W	
R129	1-249-405-11	CARBON	100	5%	1/4W	
R130	1-249-429-11	CARBON	10K	5%	1/4W	
R131	1-215-445-00	METAL	10K	1%	1/4W	
R132	1-215-445-00	METAL	10K	1%	1/4W	
R133	1-215-461-00	METAL	47K	1%	1/4W	
R134	1-215-447-00	METAL	12K	1%	1/4W	
R135	1-249-427-11	CARBON	6.8K	5%	1/4W	
R136	1-249-429-11	CARBON	10K	5%	1/4W	
R137	1-249-405-11	CARBON	100	5%	1/4W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R138	1-249-417-11	CARBON	1K	5%	1/4W	
R139	1-249-417-11	CARBON	1K	5%	1/4W	
R140	1-215-421-00	METAL	1K	1%	1/4W	
R141	1-249-429-11	CARBON	10K	5%	1/4W	
R142	1-215-457-00	METAL	33K	1%	1/4W	
R143	1-215-457-00	METAL	33K	1%	1/4W	
R144	1-249-429-11	CARBON	10K	5%	1/4W	
R145	1-215-481-00	METAL	330K	1%	1/4W	
R146	1-249-429-11	CARBON	10K	5%	1/4W	
R147	1-249-433-11	CARBON	22K	5%	1/4W	
R148	1-249-405-11	CARBON	100	5%	1/4W	
R149	1-215-421-00	METAL	1K	1%	1/4W	
R150	1-215-457-00	METAL	33K	1%	1/4W	
R151	1-215-457-00	METAL	33K	1%	1/4W	
R152	1-215-481-00	METAL	330K	1%	1/4W	
R153	1-215-431-00	METAL	2.7K	1%	1/4W	
R154	1-215-413-00	METAL	470	1%	1/4W	
R155	1-249-429-11	CARBON	10K	5%	1/4W	
R156	1-249-429-11	CARBON	10K	5%	1/4W	
R157	1-249-433-11	CARBON	22K	5%	1/4W	
R158	1-249-405-11	CARBON	100	5%	1/4W	
R159	1-249-429-11	CARBON	10K	5%	1/4W	
R160	1-247-897-11	CARBON	560K	5%	1/4W	
R161	1-215-455-00	METAL	27K	1%	1/4W	
R162	1-215-445-00	METAL	10K	1%	1/4W	
R163	1-215-445-00	METAL	10K	1%	1/4W	
R164	1-215-461-00	METAL	47K	1%	1/4W	
R165	1-215-461-00	METAL	47K	1%	1/4W	
R166	1-215-485-00	METAL	470K	1%	1/4W	
R167	1-249-429-11	CARBON	10K	5%	1/4W	
R168	1-249-429-11	CARBON	10K	5%	1/4W	
R169	1-249-433-11	CARBON	22K	5%	1/4W	
R170	1-249-405-11	CARBON	100	5%	1/4W	
R171	1-249-429-11	CARBON	10K	5%	1/4W	
R172	1-215-445-00	METAL	10K	1%	1/4W	
R173	1-215-445-00	METAL	10K	1%	1/4W	
R174	1-215-457-00	METAL	33K	1%	1/4W	
R175	1-215-457-00	METAL	33K	1%	1/4W	
R176	1-215-481-00	METAL	330K	1%	1/4W	
R177	1-249-429-11	CARBON	10K	5%	1/4W	
R178	1-247-903-00	CARBON	1M	5%	1/4W	
R179	1-249-429-11	CARBON	10K	5%	1/4W	
R180	1-249-433-11	CARBON	22K	5%	1/4W	
R181	1-249-405-11	CARBON	100	5%	1/4W	
R182	1-215-451-00	METAL	18K	1%	1/4W	
R183	1-249-429-11	CARBON	10K	5%	1/4W	
R184	1-215-477-00	METAL	220K	1%	1/4W	
R185	1-215-445-00	METAL	10K	1%	1/4W	
R186	1-215-445-00	METAL	10K	1%	1/4W	
R189	1-215-405-00	METAL	220	1%	1/4W	
R190	1-215-431-00	METAL	2.7K	1%	1/4W	
R191	1-215-405-00	METAL	220	1%	1/4W	
R192	1-215-433-00	METAL	3.3K	1%	1/4W	
R193	1-249-433-11	CARBON	22K	5%	1/4W	
R194	1-249-417-11	CARBON	1K	5%	1/4W	
R195	1-249-417-11	CARBON	1K	5%	1/4W	
R196	1-249-429-11	CARBON	10K	5%	1/4W	
R197	1-249-429-11	CARBON	10K	5%	1/4W	
R198	1-215-475-00	METAL	180K	1%	1/4W	
R200	1-215-445-00	METAL	10K	1%	1/4W	
R201	1-249-429-11	CARBON	10K	5%	1/4W	
R202	1-249-429-11	CARBON	10K	5%	1/4W	
R203	1-249-429-11	CARBON	10K	5%	1/4W	
R204	1-249-429-11	CARBON	10K	5%	1/4W	
R205	1-249-437-11	CARBON	47K	5%	1/4W	
R206	1-249-417-11	CARBON	1K	5%	1/4W	
R207	1-249-433-11	CARBON	22K	5%	1/4W	
R208	1-249-437-11	CARBON	47K	5%	1/4W	
R209	1-249-429-11	CARBON	10K	5%	1/4W	
R210	1-249-429-11	CARBON	10K	5%	1/4W	
R211	1-249-429-11	CARBON	10K	5%	1/4W	
R220	1-249-439-11	CARBON	68K	5%	1/4W	
R221	1-249-428-11	CARBON	8.2K	5%	1/4W	
R223	1-249-433-11	CARBON	22K	5%	1/4W	
R224	1-249-433-11	CARBON	22K	5%	1/4W	
R290	1-215-443-00	METAL	8.2K	1%	1/4W	
R301	1-215-405-00	METAL	220	1%	1/4W	
R302	1-215-431-00	METAL	2.7K	1%	1/4W	
R303	1-249-419-11	CARBON	1.5K	5%	1/4W	
R304	1-215-455-00	METAL	27K	1%	1/4W	
R305	1-215-445-00	METAL	10K	1%	1/4W	

<VARIABLE RESISTOR>

RV1	1-237-521-21	RES, ADJ, CERMET 100K (H BLANKING)
RV2	1-237-522-21	RES, ADJ, CERMET 200K(H DELAY POSITION)
RV3	1-237-521-21	RES, ADJ, CERMET 100K (H DELAY P WIDTH)
RV4	1-237-519-21	RES, ADJ, CERMET 20K (H PHASE)
RV5	1-237-519-21	RES, ADJ, CERMET 20K (H OSC)
RV6	1-237-518-21	RES, ADJ, CERMET 10K (H LIN GAIN)
RV7	1-237-518-21	RES, ADJ, CERMET 10K (H BLANKING.PHASE)
RV10	1-237-519-21	RES, ADJ, CERMET 20K (T AND B BALANCE)
RV11	1-237-519-21	RES, ADJ, CERMET 20K (H WIDTH (NOR))
RV12	1-237-519-21	RES, ADJ, CERMET 20K (H WIDTH (UND))
RV13	1-237-519-21	RES, ADJ, CERMET 20K (T AND B PIN(NOR))
RV14	1-237-519-21	RES, ADJ, CERMET 20K (T AND B PIN(UND))
RV15	1-237-519-21	RES, ADJ, CERMET 20K (SIDE PIN (NOR))
RV16	1-237-519-21	RES, ADJ, CERMET 20K (SIDE PIN (UND))
RV17	1-237-517-21	RES, ADJ, CERMET 5K (V LEVEL (60))
RV18	1-237-517-21	RES, ADJ, CERMET 5K (V LEVEL (50))
RV19	1-237-519-21	RES, ADJ, CERMET 20K (SIDE PIN TITLE)
RV20	1-237-519-21	RES, ADJ, CERMET 20K (V.LINE BALANCE)
RV21	1-237-519-21	RES, ADJ, CERMET 20K (V.CENTER)
RV22	1-237-516-21	RES, ADJ, CERMET 2K (V.LIN GAIN)
RV23	1-237-516-21	RES, ADJ, CERMET 2K (V.HEIGHT (NOR))
RV24	1-237-516-21	RES, ADJ, CERMET 2K (V.HEIGHT (UND))
RV25	1-237-519-21	RES, ADJ, CERMET 20K (H.CENTER LINE)
RV26	1-237-519-21	RES, ADJ, CERMET 20K (H.CENTER)
RV27	1-237-519-21	RES, ADJ, CERMET 20K (TRAPEZOID)
RV28	1-237-519-21	RES, ADJ, CERMET 20K (PARALEL)
RV29	1-237-519-21	RES, ADJ, CERMET 20K (16:9 H WIDTH)
RV30	1-237-519-21	RES, ADJ, CERMET 20K (16:9 T&B PIN)
RV31	1-237-519-21	RES, ADJ, CERMET 20K (16:9 SIDE PIN)
RV32	1-237-516-21	RES, ADJ, CERMET 2K (16:9 V HEIGHT)

<SWITCH>

S1	1-571-908-11	SWITCH, SLIDE (AFC)

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*A-1345-981-A	DB BOARD, COMPLETE	
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3-618-225-03	NUT, PLATE	

<CAPACITOR>

DB

REF.NO.	PART NO.	DESCRIPTION				REMARK
C3	1-102-963-00	CERAMIC	33PF	5%	50V	
C4	1-136-165-00	FILM	0.1MF	5%	50V	
C5	1-136-161-00	FILM	0.047MF	5%	50V	
C6	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C7	1-124-589-11	ELECT	47MF	20%	16V	
C8	1-136-153-00	FILM	0.01MF	5%	50V	
C9	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C10	1-136-161-00	FILM	0.047MF	5%	50V	
C11	1-102-973-00	CERAMIC	100PF	5%	50V	
C12	1-136-165-00	FILM	0.1MF	5%	50V	
C13	1-136-161-00	FILM	0.047MF	5%	50V	
C14	1-102-824-00	CERAMIC	470PF	5%	50V	
C15	1-136-165-00	FILM	0.1MF	5%	50V	
C16	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C17	1-136-153-00	FILM	0.01MF	5%	50V	
C18	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C19	1-124-589-11	ELECT	47MF	20%	16V	
C20	1-124-589-11	ELECT	47MF	20%	16V	
C21	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C22	1-124-589-11	ELECT	47MF	20%	16V	
C23	1-163-157-00	FILM	0.022MF	5%	50V	
C24	1-136-165-00	FILM	0.1MF	5%	50V	
C25	1-136-153-00	FILM	0.01MF	5%	50V	
C26	1-136-161-00	FILM	0.047MF	5%	50V	
C27	1-163-157-00	FILM	0.022MF	5%	50V	
C28	1-136-165-00	FILM	0.1MF	5%	50V	
C29	1-136-153-00	FILM	0.01MF	5%	50V	
C30	1-136-161-00	FILM	0.047MF	5%	50V	
C31	1-124-589-11	ELECT	47MF	20%	16V	
C32	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C33	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C34	1-136-161-00	FILM	0.047MF	5%	50V	
C35	1-102-973-00	CERAMIC	100PF	5%	50V	
C36	1-136-165-00	FILM	0.1MF	5%	50V	
C37	1-136-161-00	FILM	0.047MF	5%	50V	
C38	1-102-824-00	CERAMIC	470PF	5%	50V	
C39	1-136-165-00	FILM	0.1MF	5%	50V	
C40	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C41	1-136-153-00	FILM	0.01MF	5%	50V	
C42	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C43	1-124-589-11	ELECT	47MF	20%	16V	
C44	1-124-589-11	ELECT	47MF	20%	16V	
C45	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C46	1-136-161-00	FILM	0.047MF	5%	50V	
C47	1-102-973-00	CERAMIC	100PF	5%	50V	
C48	1-136-165-00	FILM	0.1MF	5%	50V	
C49	1-136-161-00	FILM	0.047MF	5%	50V	
C50	1-108-794-11	MYLAR	0.0015MF	5%	50V	
C51	1-136-161-00	FILM	0.047MF	5%	50V	
C52	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C53	1-101-880-00	CERAMIC	47PF	5%	50V	
C54	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C55	1-124-589-11	ELECT	47MF	20%	16V	
C56	1-124-589-11	ELECT	47MF	20%	16V	
C57	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C58	1-136-161-00	FILM	0.047MF	5%	50V	
C59	1-102-973-00	CERAMIC	100PF	5%	50V	
C60	1-136-169-00	FILM	0.22MF	5%	50V	
C61	1-136-161-00	FILM	0.047MF	5%	50V	
C62	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C63	1-136-161-00	FILM	0.047MF	5%	50V	
C64	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C65	1-101-880-00	CERAMIC	47PF	5%	50V	
C66	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C67	1-124-589-11	ELECT	47MF	20%	16V	
C68	1-124-589-11	ELECT	47MF	20%	16V	
C69	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C70	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C71	1-124-589-11	ELECT	47MF	20%	16V	
C72	1-126-096-11	ELECT	10MF	20%	25V	
C73	1-126-096-11	ELECT	10MF	20%	25V	
C74	1-126-096-11	ELECT	10MF	20%	25V	
C75	1-126-096-11	ELECT	10MF	20%	25V	
C76	1-126-096-11	ELECT	10MF	20%	25V	
C77	1-126-096-11	ELECT	10MF	20%	25V	
C78	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C81	1-102-121-00	CERAMIC	0.0022MF	10%	50V	
C83	1-136-167-00	FILM	0.15MF	5%	50V	
C84	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C87	1-101-361-00	CERAMIC	150PF	5%	50V	
C88	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C89	1-161-051-00	CERAMIC	0.01MF	10%	50V	

<DIODE>

D2	8-719-109-97	DIODE RD6.8ESB2
D3	8-719-911-19	DIODE 1SS119
D4	8-719-911-19	DIODE 1SS119
D5	8-719-911-19	DIODE 1SS119
D6	8-719-110-03	DIODE RD7.5ESB2
D7	8-719-110-03	DIODE RD7.5ESB2
D8	8-719-109-97	DIODE RD6.8ESB2
D10	8-719-911-19	DIODE 1SS119

<CONNECTOR>

DB1	*1-566-062-11	PIN, CONNECTOR 10P
DB2	*1-566-054-11	PIN, CONNECTOR 2P
DB3	*1-566-055-11	PIN, CONNECTOR 3P
DB4	*1-566-055-11	PIN, CONNECTOR 3P
DB5	*1-566-055-11	PIN, CONNECTOR 3P
DB6	*1-566-062-11	PIN, CONNECTOR 10P
DB7	*1-566-062-11	PIN, CONNECTOR 10P

<IC>

IC1	8-759-745-58	IC NJM4558D
IC2	8-759-745-58	IC NJM4558D
IC3	8-759-745-58	IC NJM4558D
IC4	8-759-745-58	IC NJM4558D
IC5	8-759-745-58	IC NJM4558D
IC6	8-759-745-58	IC NJM4558D
IC7	8-759-745-58	IC NJM4558D
IC8	8-759-745-58	IC NJM4558D
IC11	8-759-140-53	IC UPD4053BC
IC12	8-759-745-58	IC NJM4558D
IC13	8-759-929-62	IC LM7812CT
IC14	8-759-929-65	IC LM7912CT
IC15	8-759-345-38	IC HD14538BP
IC16	8-759-729-03	IC NJM2903D

<COIL>

L1	1-408-236-00	INDUCTOR	2.7MMH
L2	1-408-236-00	INDUCTOR	2.7MMH
L3	1-408-238-00	INDUCTOR	3.9MMH
L4	1-408-237-00	INDUCTOR	3.3MMH

DB

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<TRANSISTOR>	
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q4	8-729-900-36	TRANSISTOR DTC124ES	
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q6	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q7	8-729-201-05	TRANSISTOR 2SC2878-B	
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q9	8-729-106-07	TRANSISTOR 2SK514-H	
Q10	8-729-900-36	TRANSISTOR DTC124ES	
Q11	8-729-201-05	TRANSISTOR 2SC2878-B	
Q12	8-729-201-05	TRANSISTOR 2SC2878-B	
Q13	8-729-106-07	TRANSISTOR 2SK514-H	
Q14	8-729-900-36	TRANSISTOR DTC124ES	
Q15	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q16	8-729-106-07	TRANSISTOR 2SK514-H	
Q17	8-729-900-36	TRANSISTOR DTC124ES	
Q18	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q19	8-729-201-05	TRANSISTOR 2SC2878-B	
Q20	8-729-201-05	TRANSISTOR 2SC2878-B	
Q21	8-729-201-05	TRANSISTOR 2SC2878-B	
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q23	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q24	8-729-106-07	TRANSISTOR 2SK514-H	
Q25	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q26	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q27	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q28	8-729-106-07	TRANSISTOR 2SK514-H	
Q29	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q30	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q31	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q32	8-729-106-07	TRANSISTOR 2SK514-H	
Q33	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q34	8-729-173-38	TRANSISTOR 2SA733-K	
Q35	8-729-173-38	TRANSISTOR 2SA733-K	
Q36	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q37	8-729-900-36	TRANSISTOR DTC124ES	
Q38	8-729-173-38	TRANSISTOR 2SA733-K	
Q40	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q41	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q43	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q44	8-729-173-38	TRANSISTOR 2SA733-K	
Q47	8-729-900-65	TRANSISTOR DTA144ES	
Q49	8-729-900-89	TRANSISTOR DTC144ES	
Q101	8-729-900-89	TRANSISTOR DTC144ES	
		<RESISTOR>	
R3	1-249-423-11	CARBON 3.3K 5% 1/4W	
R4	1-249-441-11	CARBON 100K 5% 1/4W	
R5	1-249-429-11	CARBON 10K 5% 1/4W	
R6	1-249-420-11	CARBON 1.8K 5% 1/4W	
R7	1-249-429-11	CARBON 10K 5% 1/4W	
R8	1-249-429-11	CARBON 10K 5% 1/4W	
R9	1-249-425-11	CARBON 4.7K 5% 1/4W	
R10	1-215-467-00	METAL 82K 1% 1/4W	
R11	1-215-439-00	METAL 5.6K 1% 1/4W	
R12	1-215-477-00	METAL 220K 1% 1/4W	
R13	1-249-429-11	CARBON 10K 5% 1/4W	
R14	1-249-433-11	CARBON 22K 5% 1/4W	
R15	1-249-433-11	CARBON 22K 5% 1/4W	
R16	1-249-441-11	CARBON 100K 5% 1/4W	
R17	1-249-433-11	CARBON 22K 5% 1/4W	
R18	1-215-477-00	METAL 220K 1% 1/4W	
R19	1-249-429-11	CARBON 10K 5% 1/4W	
R20	1-249-433-11	CARBON 22K 5% 1/4W	
R21	1-249-433-11	CARBON 22K 5% 1/4W	
R22	1-249-441-11	CARBON 100K 5% 1/4W	
R23	1-249-429-11	CARBON 10K 5% 1/4W	
R24	1-215-453-00	METAL 22K 1% 1/4W	
R25	1-249-405-11	CARBON 100 5% 1/4W	
R26	1-249-417-11	CARBON 1K 5% 1/4W	
R27	1-249-433-11	CARBON 22K 5% 1/4W	
R28	1-249-425-11	CARBON 4.7K 5% 1/4W	
R29	1-249-435-11	CARBON 33K 5% 1/4W	
R30	1-249-421-11	CARBON 2.2K 5% 1/4W	
R31	1-249-417-11	CARBON 1K 5% 1/4W	
R32	1-249-433-11	CARBON 22K 5% 1/4W	
R33	1-249-425-11	CARBON 4.7K 5% 1/4W	
R34	1-247-903-00	CARBON 1M 5% 1/4W	
R35	1-249-429-11	CARBON 10K 5% 1/4W	
R36	1-249-429-11	CARBON 10K 5% 1/4W	
R37	1-249-429-11	CARBON 10K 5% 1/4W	
R38	1-215-445-00	METAL 10K 1% 1/4W	
R39	1-215-445-00	METAL 10K 1% 1/4W	
R40	1-249-429-11	CARBON 10K 5% 1/4W	
R42	1-249-441-11	CARBON 100K 5% 1/4W	
R43	1-249-405-11	CARBON 100 5% 1/4W	
R44	1-249-417-11	CARBON 1K 5% 1/4W	
R45	1-215-445-00	METAL 10K 1% 1/4W	
R46	1-215-445-00	METAL 10K 1% 1/4W	
R47	1-249-429-11	CARBON 10K 5% 1/4W	
R48	1-247-895-00	CARBON 470K 5% 1/4W	
R49	1-215-451-00	METAL 18K 1% 1/4W	
R50	1-215-451-00	METAL 18K 1% 1/4W	
R51	1-249-429-11	CARBON 10K 5% 1/4W	
R52	1-215-451-00	METAL 18K 1% 1/4W	
R53	1-247-895-00	CARBON 470K 5% 1/4W	
R54	1-215-451-00	METAL 18K 1% 1/4W	
R55	1-249-429-11	CARBON 10K 5% 1/4W	
R57	1-249-405-11	CARBON 100 5% 1/4W	
R58	1-249-405-11	CARBON 100 5% 1/4W	
R59	1-249-421-11	CARBON 2.2K 5% 1/4W	
R60	1-215-445-00	METAL 10K 1% 1/4W	
R61	1-249-429-11	CARBON 10K 5% 1/4W	
R62	1-215-445-00	METAL 10K 1% 1/4W	
R63	1-215-453-00	METAL 22K 1% 1/4W	
R64	1-249-429-11	CARBON 10K 5% 1/4W	
R65	1-249-405-11	CARBON 100 5% 1/4W	
R66	1-249-417-11	CARBON 1K 5% 1/4W	
R67	1-249-433-11	CARBON 22K 5% 1/4W	
R68	1-249-425-11	CARBON 4.7K 5% 1/4W	
R69	1-249-435-11	CARBON 33K 5% 1/4W	
R70	1-249-421-11	CARBON 2.2K 5% 1/4W	
R71	1-249-417-11	CARBON 1K 5% 1/4W	
R72	1-249-433-11	CARBON 22K 5% 1/4W	
R73	1-249-425-11	CARBON 4.7K 5% 1/4W	
R74	1-247-903-00	CARBON 1M 5% 1/4W	
R75	1-249-429-11	CARBON 10K 5% 1/4W	
R76	1-249-429-11	CARBON 10K 5% 1/4W	
R77	1-249-429-11	CARBON 10K 5% 1/4W	
R78	1-215-469-91	METAL 100K 1% 1/4W	
R79	1-249-405-11	CARBON 100 5% 1/4W	
R80	1-249-417-11	CARBON 1K 5% 1/4W	
R81	1-249-433-11	CARBON 22K 5% 1/4W	
R82	1-249-425-11	CARBON 4.7K 5% 1/4W	

..... E FORMAT PARTS LIST

DB **DC**

REF.NO.	PART NO.	DESCRIPTION				REMARK
R83	1-249-435-11	CARBON	33K	5%	1/4W	
R84	1-249-421-11	CARBON	2.2K	5%	1/4W	
R85	1-249-417-11	CARBON	1K	5%	1/4W	
R86	1-249-433-11	CARBON	22K	5%	1/4W	
R87	1-249-425-11	CARBON	4.7K	5%	1/4W	
R88	1-247-895-00	CARBON	470K	5%	1/4W	
R89	1-247-895-00	CARBON	470K	5%	1/4W	
R90	1-249-429-11	CARBON	10K	5%	1/4W	
R91	1-249-429-11	CARBON	10K	5%	1/4W	
R92	1-215-469-91	METAL	100K	1%	1/4W	
R93	1-249-405-11	CARBON	100	5%	1/4W	
R94	1-249-417-11	CARBON	1K	5%	1/4W	
R95	1-249-433-11	CARBON	22K	5%	1/4W	
R96	1-249-425-11	CARBON	4.7K	5%	1/4W	
R97	1-249-435-11	CARBON	33K	5%	1/4W	
R98	1-249-421-11	CARBON	2.2K	5%	1/4W	
R99	1-249-412-11	CARBON	390	5%	1/4W	
R100	1-249-433-11	CARBON	22K	5%	1/4W	
R101	1-249-425-11	CARBON	4.7K	5%	1/4W	
R102	1-247-895-00	CARBON	470K	5%	1/4W	
R103	1-247-895-00	CARBON	470K	5%	1/4W	
R104	1-249-429-11	CARBON	10K	5%	1/4W	
R105	1-249-429-11	CARBON	10K	5%	1/4W	
R106	1-215-397-00	METAL	100	1%	1/4W	
R107	1-249-393-11	CARBON	10	5%	1/4W	F
R108	1-249-393-11	CARBON	10	5%	1/4W	F
R109	1-249-429-11	CARBON	10K	5%	1/4W	
R110	1-215-437-91	METAL	4.7K	1%	1/4W	
R111	1-249-421-11	CARBON	2.2K	5%	1/4W	
R112	1-249-405-11	CARBON	100	5%	1/4W	
R113	1-249-429-11	CARBON	10K	5%	1/4W	
R114	1-215-441-00	METAL	6.8K	1%	1/4W	
R115	1-215-469-91	METAL	100K	1%	1/4W	
R116	1-249-421-11	CARBON	2.2K	5%	1/4W	
R117	1-249-405-11	CARBON	100	5%	1/4W	
R118	1-249-405-11	CARBON	100	5%	1/4W	
R120	1-215-421-00	METAL	1K	1%	1/4W	
R121	1-249-425-11	CARBON	4.7K	5%	1/4W	
R122	1-215-461-00	METAL	47K	1%	1/4W	
R123	1-215-437-91	METAL	4.7K	1%	1/4W	
R124	1-215-437-91	METAL	4.7K	1%	1/4W	
R125	1-215-469-91	METAL	100K	1%	1/4W	
R126	1-249-435-11	CARBON	33K	5%	1/4W	
R128	1-202-731-00	SOLID	10M	5%	1/2W	
R129	1-215-479-00	METAL	270K	1%	1/4W	
R130	1-247-830-11	CARBON	910	5%	1/4W	
R132	1-247-830-11	CARBON	910	5%	1/4W	
R169	1-247-903-00	CARBON	1M	5%	1/4W	
R170	1-247-903-00	CARBON	1M	5%	1/4W	
R171	1-249-441-11	CARBON	100K	5%	1/4W	
R172	1-249-429-11	CARBON	10K	5%	1/4W	
R173	1-249-429-11	CARBON	10K	5%	1/4W	
R174	1-249-421-11	CARBON	2.2K	5%	1/4W	
R175	1-249-421-11	CARBON	2.2K	5%	1/4W	
R176	1-249-425-11	CARBON	4.7K	5%	1/4W	
R177	1-249-421-11	CARBON	2.2K	5%	1/4W	
R185	1-249-417-11	CARBON	1K	5%	1/4W	
R186	1-249-429-11	CARBON	10K	5%	1/4W	
R187	1-249-435-11	CARBON	33K	5%	1/4W	
R188	1-249-429-11	CARBON	10K	5%	1/4W	
R189	1-249-435-11	CARBON	33K	5%	1/4W	
R190	1-249-417-11	CARBON	1K	5%	1/4W	
R191	1-249-423-11	CARBON	3.3K	5%	1/4W	
R192	1-215-453-00	METAL	22K	1%	1/4W	
R193	1-249-417-11	CARBON	1K	5%	1/4W	
R194	1-249-417-11	CARBON	1K	5%	1/4W	
R195	1-249-429-11	CARBON	10K	5%	1/4W	
R301	1-249-437-11	CARBON	47K	5%	1/4W	

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*A-1341-685-A DC BOARD, COMPLETE
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<CAPACITOR>

C1	1-126-157-11	ELECT	10MF	20%	16V
C2	1-126-157-11	ELECT	10MF	20%	16V
C3	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C4	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C5	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C6	1-163-038-91	CERAMIC CHIP	0.1MF		25V

<CONNECTOR>

DC1	*1-566-049-11	PIN, CONNECTOR 10P
DC2	*1-566-049-11	PIN, CONNECTOR 10P

<IC>

IC1	8-759-509-17	IC XRU4053BF
IC2	8-759-509-17	IC XRU4053BF
IC3	8-759-509-17	IC XRU4053BF

<TRANSISTOR>

Q1	8-729-901-01	TRANSISTOR DTC144EK
Q2	8-729-901-01	TRANSISTOR DTC144EK
Q3	8-729-901-01	TRANSISTOR DTC144EK
Q4	8-729-901-01	TRANSISTOR DTC144EK

<RESISTOR>

R1	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R2	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R3	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R4	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R5	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R6	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R7	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R8	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R9	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R10	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R11	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R12	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R13	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R14	1-216-683-11	METAL CHIP	22K	0.50%	1/10W
R15	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R16	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R17	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R18	1-216-697-11	METAL CHIP	82K	0.50%	1/10W
R19	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R20	1-216-691-11	METAL CHIP	47K	0.50%	1/10W
R21	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R22	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R23	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R24	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R25	1-216-675-91	METAL CHIP	10K	0.50%	1/10W

DC EA

REF.NO.	PART NO.	DESCRIPTION			REMARK
R26	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R27	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R28	1-216-697-11	METAL CHIP	82K	0.50% 1/10W	
R29	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R30	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R31	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R32	1-216-655-11	METAL CHIP	1.5K	0.50% 1/10W	
R37	1-216-089-91	METAL GLAZE	47K	5% 1/10W	
R39	1-216-683-11	METAL CHIP	22K	0.50% 1/10W	
R40	1-216-689-11	METAL CHIP	39K	0.50% 1/10W	
R41	1-216-689-11	METAL CHIP	39K	0.50% 1/10W	
R42	1-216-675-91	METAL CHIP	10K	0.50% 1/10W	
R51	1-216-675-91	METAL CHIP	10K	0.50% 1/10W	
R52	1-216-683-11	METAL CHIP	22K	0.50% 1/10W	
R53	1-216-683-11	METAL CHIP	22K	0.50% 1/10W	
R54	1-216-683-11	METAL CHIP	22K	0.50% 1/10W	
R55	1-216-675-91	METAL CHIP	10K	0.50% 1/10W	
R56	1-216-675-91	METAL CHIP	10K	0.50% 1/10W	
R57	1-216-683-11	METAL CHIP	22K	0.50% 1/10W	
R58	1-216-683-11	METAL CHIP	22K	0.50% 1/10W	
R59	1-216-683-11	METAL CHIP	22K	0.50% 1/10W	
R60	1-216-675-91	METAL CHIP	10K	0.50% 1/10W	
R61	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R62	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R63	1-216-693-11	METAL CHIP	56K	0.50% 1/10W	
R64	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R65	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R66	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R67	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R68	1-216-693-11	METAL CHIP	56K	0.50% 1/10W	
R69	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R70	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R71	1-216-679-11	METAL CHIP	15K	0.50% 1/10W	

<VARIABLE RESISTOR>

RV1	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.L)
RV2	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.L)
RV3	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.L)
RV4	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.L)
RV5	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.L)
RV6	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.C)
RV7	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.C)
RV8	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.C)
RV9	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.C)
RV10	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.C)
RV11	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.R)
RV12	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.R)
RV13	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.R)
RV14	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.R)
RV15	1-228-459-00	RES, ADJ, CERMET 10K	(V.CONV.R)
RV16	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.L)
RV17	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.L)
RV18	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.L)
RV19	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.L)
RV20	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.L)
RV21	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.C)
RV22	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.C)
RV23	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.C)
RV24	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.C)
RV25	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.C)
RV26	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.R)
RV27	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.R)
RV28	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.R)

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV29	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.R)
RV30	1-228-459-00	RES, ADJ, CERMET 10K	(H.CONV.R)
RV31	1-228-462-00	RES, ADJ, CERMET 100K	(UND.S.Y.BOW)
RV32	1-228-459-00	RES, ADJ, CERMET 10K	(UND.S.LEFT)
RV33	1-228-459-00	RES, ADJ, CERMET 10K	(H.AMP RIGHT)
RV41	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.L)
RV42	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.L)
RV43	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.L)
RV44	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.L)
RV45	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.L)
RV46	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.R)
RV47	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.R)
RV48	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.R)
RV49	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.R)
RV50	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 V.CONV.R)
RV51	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.L)
RV52	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.L)
RV53	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.L)
RV54	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.L)
RV55	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.L)
RV56	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.R)
RV57	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.R)
RV58	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.R)
RV59	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.R)
RV60	1-228-459-00	RES, ADJ, CERMET 10K	(16:9 H.CONV.R)
RV61	1-228-462-00	RES, ADJ, CERMET 100K	(16:9 Y.BOW)

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*A-1346-029-A	EA BOARD, COMPLETE	
	**********	
*4-347-706-00	HEAT SINK (TR)	
*4-373-965-01	INSULATOR (SMALL)	

<CAPACITOR>

C1	1-101-810-00	CERAMIC	100PF	5%	500V
C2	1-126-966-11	ELECT	33MF	20%	25V
C3	1-124-357-11	ELECT	33MF	20%	35V
C4	1-126-329-11	ELECT	470MF		50V
C5	1-126-329-11	ELECT	470MF		50V
C6	1-101-361-00	CERAMIC	150PF	5%	50V
C7	1-104-965-11	ELECT	10MF		160V
C8	1-136-337-11	FILM	3.3MF	10%	100V
C10	1-104-965-11	ELECT	10MF		160V
C12	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C13	1-136-165-00	FILM	0.1MF	5%	50V
C14	1-130-728-00	FILM	0.0022MF	5%	50V
C15	1-102-973-00	CERAMIC	100PF	5%	50V
C16	1-124-118-51	ELECT	220MF	20%	16V
C17	1-126-233-11	ELECT	22MF	20%	16V
C18	1-102-973-00	CERAMIC	100PF	5%	50V
C19	1-126-967-11	ELECT	47MF	20%	25V
C20	1-136-161-00	FILM	0.047MF	5%	50V
C21	1-101-810-00	CERAMIC	100PF	5%	500V
C22	1-108-700-11	MYLAR	0.047MF	10%	200V
C23	1-123-024-21	ELECT	33MF		160V
C24	1-104-965-11	ELECT	10MF		160V
C25	1-136-541-11	FILM	1.5MF	5%	200V
C26	1-136-161-00	FILM	0.047MF	5%	50V
C27	1-108-700-11	MYLAR	0.047MF	10%	200V
C28	1-124-666-11	ELECT	4.7MF	20%	200V
C29	1-101-810-00	CERAMIC	100PF	5%	500V
C30	1-162-135-11	CERAMIC	560PF	10%	2KV
C31	1-136-069-00	FILM	0.0044MF	3%	2KV

EA

REF.NO.	PART NO.	DESCRIPTION				REMARK
C32	1-136-069-00	FILM	0.0044MF	3%	2KV	
C33	1-124-512-11	ELECT	33MF	20%	50V	
C34	1-124-512-11	ELECT	33MF	20%	50V	
C35	1-126-163-11	ELECT	4.7MF	20%	50V	
C36	1-126-163-11	ELECT	4.7MF	20%	50V	
C37	1-161-051-00	CERAMIC	0.01MF	10%	50V	
C39	1-162-318-11	CERAMIC	0.001MF	10%	500V	
C40	1-124-118-51	ELECT	220MF	20%	16V	
C41	1-102-244-00	CERAMIC	220PF	10%	500V	
C42	1-102-973-00	CERAMIC	100PF	5%	50V	
		<DIODE>				
D1	8-719-110-31	DIODE RD12ESB2				
D2	8-719-911-19	DIODE 1SS119				
D3	8-719-911-19	DIODE 1SS119				
D4	8-719-911-19	DIODE 1SS119				
D7	8-719-110-03	DIODE RD7.5ESB2				
D8	8-719-300-76	DIODE RH-1A				
D9	8-719-928-08	DIODE ERD28-08S				
D10	8-719-300-76	DIODE RH-1A				
D11	8-719-300-76	DIODE RH-1A				
D12	8-719-300-76	DIODE RH-1A				
D13	8-719-109-75	DIODE RD4.3ESB2				
D14	8-719-109-75	DIODE RD4.3ESB2				
D15	8-719-911-19	DIODE 1SS119				
D16	8-719-911-19	DIODE 1SS119				
		<CONNECTOR>				
EA1	*1-568-536-11	PLUG (MINIATURE DY) 6P				
		<IC>				
IC1	8-759-100-75	IC UPC1394C				
IC2	8-759-745-58	IC NJM4558D				
		<COIL>				
L1	1-421-421-00	COIL, CHOKE 100UH				
L2	1-421-421-00	COIL, CHOKE 100UH				
L3	1-249-387-11	CARBON	3.3	5%	1/4W	F
L4	1-459-111-00	COIL, DRAM CORE (CDI)				
L5	1-459-111-00	COIL, DRAM CORE (CDI)				
		<TRANSISTOR>				
Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q2	8-729-697-92	TRANSISTOR 2SA979-G				
Q3	8-729-177-43	TRANSISTOR 2SD774-4				
Q4	8-729-303-61	TRANSISTOR 2SC3851-G				
Q5	8-729-304-07	TRANSISTOR 2SA1488-Y				
Q10	8-729-119-80	TRANSISTOR 2SC2688-LK				
Q11	8-729-175-23	TRANSISTOR 2SC2752-K				
Q12	8-729-200-17	TRANSISTOR 2SA1091-O				
Q13	8-729-119-80	TRANSISTOR 2SC2688-LK				
Q14	8-729-202-53	TRANSISTOR 2SD1556-LB				
Q15	8-729-313-42	TRANSISTOR 2SD1134-C				
Q16	8-729-385-82	TRANSISTOR 2SB858-C				
		<RESISTOR>				
R1	1-249-418-11	CARBON	1.2K	5%	1/4W	
R2	1-249-425-11	CARBON	4.7K	5%	1/4W	
R3	1-249-429-11	CARBON	10K	5%	1/4W	
R4	1-249-429-11	CARBON	10K	5%	1/4W	
R5	1-249-429-11	CARBON	10K	5%	1/4W	
R6	1-249-429-11	CARBON	10K	5%	1/4W	
R7	1-249-421-11	CARBON	2.2K	5%	1/4W	
R8	1-247-873-31	CARBON	56K	5%	1/4W	
R9	1-249-429-11	CARBON	10K	5%	1/4W	
R10	1-216-433-00	METAL OXIDE	1.2K	5%	1W	F
R11	1-216-350-11	METAL OXIDE	1.2	5%	1W	F
R12	1-216-350-11	METAL OXIDE	1.2	5%	1W	F
R13	1-249-417-11	CARBON	1K	5%	1/4W	
R14	1-215-887-00	METAL OXIDE	150	5%	2W	F
R15	1-249-429-11	CARBON	10K	5%	1/4W	
R22	1-249-417-11	CARBON	1K	5%	1/4W	
R23	1-215-445-00	METAL	10K	1%	1/4W	
R24	1-215-445-00	METAL	10K	1%	1/4W	
R25	1-215-431-00	METAL	2.7K	1%	1/4W	
R26	1-215-431-00	METAL	2.7K	1%	1/4W	
R27	1-249-435-11	CARBON	33K	5%	1/4W	
R28	1-215-461-00	METAL	47K	1%	1/4W	
R29	1-249-429-11	CARBON	10K	5%	1/4W	
R30	1-249-429-11	CARBON	10K	5%	1/4W	
R31	1-247-868-11	CARBON	36K	5%	1/4W	
R32	1-249-429-11	CARBON	10K	5%	1/4W	
R33	1-249-427-11	CARBON	6.8K	5%	1/4W	
R34	1-215-433-00	METAL	3.3K	1%	1/4W	
R35	1-215-435-00	METAL	3.9K	1%	1/4W	
R36	1-249-429-11	CARBON	10K	5%	1/4W	
R37	1-249-441-11	CARBON	100K	5%	1/4W	
R38	1-249-441-11	CARBON	100K	5%	1/4W	
R39	1-215-469-91	METAL	100K	1%	1/4W	
R40	1-249-429-11	CARBON	10K	5%	1/4W	
R41	1-249-429-11	CARBON	10K	5%	1/4W	
R42	1-215-876-00	METAL OXIDE	15K	5%	1W	F
R43	1-215-859-00	METAL OXIDE	22	5%	1W	F
R44	1-216-349-00	METAL OXIDE	1	5%	1W	F
R45	1-249-417-11	CARBON	1K	5%	1/4W	
R46	1-249-417-11	CARBON	1K	5%	1/4W	
R47	1-216-463-00	METAL OXIDE	12K	5%	2W	F
R48	1-216-346-00	METAL OXIDE	0.56	5%	1W	F
R49	1-249-382-11	CARBON	1.2	5%	1/4W	F
R50	1-247-826-00	CARBON	620	5%	1/4W	
R51	1-247-826-00	CARBON	620	5%	1/4W	
R52	1-215-445-00	METAL	10K	1%	1/4W	
R53	1-215-445-00	METAL	10K	1%	1/4W	
R54	1-215-447-00	METAL	12K	1%	1/4W	
R55	1-249-391-11	CARBON	6.8	5%	1/4W	F
R56	1-215-445-00	METAL	10K	1%	1/4W	
R57	1-215-445-00	METAL	10K	1%	1/4W	
R58	1-249-405-11	CARBON	100	5%	1/4W	
R59	1-249-419-11	CARBON	1.5K	5%	1/4W	
R60	1-249-419-11	CARBON	1.5K	5%	1/4W	
R61	1-215-907-11	METAL OXIDE	22	5%	3W	F
R62	1-215-907-11	METAL OXIDE	22	5%	3W	F
R63	1-216-361-00	METAL OXIDE	0.22	5%	2W	F
		<TRANSFORMER>				
T1	1-460-067-11	HLT				
T2	1-407-850-00	DLT				
T3	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE				
T4	1-437-079-00	TRANSFORMER, HORIZONTAL DRIVE				
T5	1-439-383-11	HOT				

EB

REF.NO.	PART NO.	DESCRIPTION				REMARK
**********						
	*A-1345-731-A	EB BOARD, COMPLETE				
		**********				
	*4-373-965-01	INSULATOR (SMALL)				
	*4-373-966-01	INSULATOR (LARGE)				
		<CAPACITOR>				
C1	1-124-666-11	ELECT	4.7MF	20%	200V	
C2	1-126-966-11	ELECT	33MF	20%	25V	
C3	1-124-903-11	ELECT	1MF	20%	50V	
C4	1-124-357-11	ELECT	33MF	20%	35V	
C6	1-130-789-00	FILM	1MF	5%	100V	
C7	1-106-375-12	MYLAR	0.022MF	10%	200V	
C8	1-123-269-00	ELECT	4.7MF	20%	160V	
C9	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C10	1-124-122-11	ELECT	100MF	20%	25V	
C11	1-102-973-00	CERAMIC	100PF	5%	50V	
C12	1-124-122-11	ELECT	100MF	20%	25V	
C13	1-136-161-00	FILM	0.047MF	5%	50V	
C14	1-124-915-11	ELECT	10MF	20%	50V	
C15	1-136-167-00	FILM	0.15MF	5%	50V	
C16	1-124-046-00	ELECT	10MF		160V	
C17	1-124-808-51	ELECT	10MF	20%	200V	
C18	1-124-122-11	ELECT	100MF	20%	25V	
C19	1-124-122-11	ELECT	100MF	20%	25V	
C20	1-162-129-00	CERAMIC	150PF	10%	2KV	
C21	1-136-173-00	FILM	0.47MF	5%	50V	
C22	1-102-959-00	CERAMIC	22PF	5%	50V	
C23	1-101-880-00	CERAMIC	47PF	5%	50V	
		<DIODE>				
D1	8-719-911-19	DIODE 1SS119				
D2	8-719-911-19	DIODE 1SS119				
D3	8-719-911-19	DIODE 1SS119				
D4	8-719-908-03	DIODE GP08D				
D5	8-719-908-03	DIODE GP08D				
D6	8-719-911-19	DIODE 1SS119				
D7	8-719-911-19	DIODE 1SS119				
D8	8-719-911-19	DIODE 1SS119				
D9	8-719-911-19	DIODE 1SS119				
D10	8-719-911-19	DIODE 1SS119				
D21	8-719-911-19	DIODE 1SS119				
		<COIL>				
L1	1-459-123-00	COIL, DUST CORE(PAC)				
		<TRANSISTOR>				
Q1	8-729-697-92	TRANSISTOR 2SA979-G				
Q2	8-729-140-96	TRANSISTOR 2SD774-34				
Q3	8-729-255-12	TRANSISTOR 2SC2551-O				
Q4	8-729-200-17	TRANSISTOR 2SA1091-O				
Q5	8-729-208-71	TRANSISTOR 2SC3298B-O				
Q6	8-729-208-38	TRANSISTOR 2SA1306A-O				
Q7	8-729-386-12	TRANSISTOR 2SB861-C				
Q8	8-729-255-12	TRANSISTOR 2SC2551-O				
Q9	8-729-697-92	TRANSISTOR 2SA979-G				
Q10	8-729-140-96	TRANSISTOR 2SD774-34				
Q11	8-729-140-97	TRANSISTOR 2SB734-34				
Q12	8-729-306-92	TRANSISTOR 2SD669A-C				
Q13	8-729-306-92	TRANSISTOR 2SD669A-C				
Q14	8-729-255-12	TRANSISTOR 2SC2551-O				
Q15	8-729-255-12	TRANSISTOR 2SC2551-O				
Q16	8-729-255-12	TRANSISTOR 2SC2551-O				
Q17	8-729-200-17	TRANSISTOR 2SA1091-O				
Q18	8-729-119-80	TRANSISTOR 2SC2688-LK				
Q19	8-729-119-80	TRANSISTOR 2SC2688-LK				
		<RESISTOR>				
R1	1-249-429-11	CARBON	10K	5%	1/4W	
R2	1-249-433-11	CARBON	22K	5%	1/4W	
R3	1-249-425-11	CARBON	4.7K	5%	1/4W	
R4	1-249-430-11	CARBON	12K	5%	1/4W	
R5	1-249-426-11	CARBON	5.6K	5%	1/4W	
R6	1-249-429-11	CARBON	10K	5%	1/4W	
R7	1-216-489-11	METAL OXIDE	27K	5%	3W	F
R8	1-247-802-11	CARBON	62	5%	1/4W	
R9	1-249-414-11	CARBON	560	5%	1/4W	
R10	1-249-382-11	CARBON	1.2	5%	1/4W	F
R11	1-249-382-11	CARBON	1.2	5%	1/4W	F
R12	1-216-351-00	METAL OXIDE	1.5	5%	1W	F
R13	1-216-431-11	METAL OXIDE	560	5%	1W	F
R14	1-215-866-11	METAL OXIDE	330	5%	1W	F
R15	1-249-425-11	CARBON	4.7K	5%	1/4W	
R16	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R17	1-247-700-11	CARBON	100	5%	1/4W	F
R18	1-215-874-11	METAL OXIDE	6.8K	5%	1W	F
R19	1-249-429-11	CARBON	10K	5%	1/4W	
R20	1-249-429-11	CARBON	10K	5%	1/4W	
R21	1-249-425-11	CARBON	4.7K	5%	1/4W	
R22	1-249-423-11	CARBON	3.3K	5%	1/4W	
R23	1-249-425-11	CARBON	4.7K	5%	1/4W	
R24	1-249-417-11	CARBON	1K	5%	1/4W	
R25	1-249-417-11	CARBON	1K	5%	1/4W	
R26	1-249-421-11	CARBON	2.2K	5%	1/4W	
R27	1-249-421-11	CARBON	2.2K	5%	1/4W	
R28	1-249-405-11	CARBON	100	5%	1/4W	
R29	1-249-452-11	CARBON	2.7	5%	1/4W	F
R30	1-249-452-11	CARBON	2.7	5%	1/4W	F
R31	1-249-407-11	CARBON	150	5%	1/4W	F
R32	1-216-351-00	METAL OXIDE	1.5	5%	1W	F
R33	1-215-421-00	METAL	1K	1%	1/4W	
R34	1-215-445-00	METAL	10K	1%	1/4W	
R35	1-249-423-11	CARBON	3.3K	5%	1/4W	
R36	1-216-465-11	METAL OXIDE	27K	5%	2W	F
R37	1-249-401-11	CARBON	47	5%	1/4W	
R38	1-249-425-11	CARBON	4.7K	5%	1/4W	
R39	1-215-445-00	METAL	10K	1%	1/4W	
R40	1-215-453-00	METAL	22K	1%	1/4W	
R41	1-215-421-00	METAL	1K	1%	1/4W	
R42	1-247-688-11	CARBON	10	5%	1/4W	F
R43	1-247-688-11	CARBON	10	5%	1/4W	F
R44	1-215-865-11	METAL OXIDE	220	5%	1W	F
R45	1-247-688-11	CARBON	10	5%	1/4W	F
R51	1-249-411-11	CARBON	330	5%	1/4W	
		<TRANSFORMER>				
T1	1-421-504-00	TRANSFORMER, FERRITE (VPT)				
T2	1-407-849-00	TRANSFORMER, D.F				

GA

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
		**********	
	*A-1316-165-A	GA BOARD, COMPLETE (BVM-3011P ONLY)	
		**********	
	*A-1316-167-A	GA BOARD, COMPLETE (BVM-2811/3011 ONLY)	
		**********	
		(INCLUDING GB BOARD)	
	1-533-167-21	HOLDER, FUSE	
	1-533-168-21	HOLDER, FUSE	
	1-535-316-11	TERMINAL, GROUND (M4)	
	⚠1-570-173-22	SELECTOR, POWER VOLTAGE	
	⚠1-580-375-11	INLET 3P	
	2-990-241-02	HOLDER (A), PLUG	
	*3-337-402-01	BAND, BINDING	
	*4-347-706-00	HEAT SINK (TR)	
	*4-371-879-02	COVER, AC SELECT	
	4-379-403-01	SPACER (G1), POLISHING	
	*4-379-408-01	INSULATOR (G3)	
	*4-379-409-01	NUT, PLATE	
	4-379-410-01	SPACER (G2), POLISHING	
	*4-379-430-01	PANEL, POWER	
	*4-386-847-01	HEAT SINK (S.R.T)	
	*4-386-848-01	BAND (S.R.T)	
	*4-393-031-01	COVER, FUSE HOLDER	
	*4-601-466-11	COVER, 3P INLET	

<CAPACITOR>

C1	1-124-024-00	ELECT	4.7MF	20%	350V
C2	1-124-024-00	ELECT	4.7MF	20%	350V
C3	1-162-117-00	CERAMIC	100PF	10%	500V
C4	1-162-117-00	CERAMIC	100PF	10%	500V
C5	1-162-117-00	CERAMIC	100PF	10%	500V
C6	1-162-117-00	CERAMIC	100PF	10%	500V
C7	1-126-104-11	ELECT	470MF	20%	25V
C8	1-126-105-11	ELECT	1000MF	20%	25V
C9	1-126-104-11	ELECT	470MF	20%	25V
C10	1-126-105-11	ELECT	1000MF	20%	25V
C11	1-126-104-11	ELECT	470MF	20%	25V
C12	1-124-602-00	ELECT	2200MF	20%	25V
C13	1-126-104-11	ELECT	470MF	20%	25V
C14	1-124-602-00	ELECT	2200MF	20%	25V
C15	1-124-360-00	ELECT	1000MF	20%	16V
C16	1-126-103-11	ELECT	470MF	20%	16V
C17	1-106-375-12	MYLAR	0.022MF	10%	200V
C18	1-108-638-11	MYLAR	0.1MF	10%	100V
C19	1-102-030-00	CERAMIC	330PF	10%	500V
C20	1-162-117-00	CERAMIC	100PF	10%	500V
C21	1-102-038-00	CERAMIC	0.001MF		500V
C22	1-162-117-00	CERAMIC	100PF	10%	500V
C23	1-106-375-12	MYLAR	0.022MF	10%	100V
C24	1-108-704-11	MYLAR	0.1MF	10%	200V
C25	1-124-903-11	ELECT	1MF	20%	50V
C26	1-101-361-00	CERAMIC	150PF	5%	50V
C27	1-101-361-00	CERAMIC	150PF	5%	50V
C28	1-126-964-11	ELECT	10MF	20%	16V
C29	1-126-967-11	ELECT	47MF	20%	25V
C30	1-162-117-00	CERAMIC	100PF	10%	500V
C31	1-102-030-00	CERAMIC	330PF	10%	500V
C32	1-124-903-11	ELECT	1MF	20%	50V
C33	1-101-361-00	CERAMIC	150PF	5%	50V
C34	1-101-361-00	CERAMIC	150PF	5%	50V
C35	1-124-903-11	ELECT	1MF	20%	50V
C36	1-126-967-11	ELECT	47MF	20%	25V
C37	1-130-734-00	FILM	0.0068MF	5%	50V
C38	1-136-165-00	FILM	0.1MF	5%	50V
C39	1-136-165-00	FILM	0.1MF	5%	50V
C40	1-123-381-00	ELECT	2.2MF	20%	50V
C41	1-102-038-00	CERAMIC	0.001MF		500V
C42	1-136-165-00	FILM	0.1MF	5%	50V
C43	1-136-165-00	FILM	0.1MF	5%	50V
C44	1-126-964-11	ELECT	10MF	20%	16V
C45	1-162-132-00	CERAMIC	270PF	10%	2KV
C46	1-126-964-11	ELECT	10MF	20%	16V
C47	1-136-173-00	FILM	0.47MF	5%	50V
C48	1-136-173-00	FILM	0.47MF	5%	50V
C49	1-126-964-11	ELECT	10MF	20%	16V
C50	1-101-006-00	CERAMIC	0.047MF		50V
C51	1-101-006-00	CERAMIC	0.047MF		50V
C52	1-101-006-00	CERAMIC	0.047MF		50V
C53	1-101-006-00	CERAMIC	0.047MF		50V
C54	1-101-006-00	CERAMIC	0.047MF		50V
C55	1-126-964-11	ELECT	10MF	20%	16V
C56	1-136-201-11	FILM	0.22MF	5%	400V
C57	1-124-915-11	ELECT	10MF	20%	25V
C58	1-124-902-00	ELECT	0.47MF	20%	50V
C59	1-130-734-00	FILM	0.0068MF	5%	50V
C60	1-102-228-00	CERAMIC	470PF	10%	500V
C61	1-102-228-00	CERAMIC	470PF	10%	500V
C62	1-102-228-00	CERAMIC	470PF	10%	500V
C63	1-102-228-00	CERAMIC	470PF	10%	500V
C64	1-124-024-00	ELECT	4.7MF	20%	350V
C65	1-124-024-00	ELECT	4.7MF	20%	350V
C66	1-162-117-00	CERAMIC	100PF	10%	500V
C67	1-162-117-00	CERAMIC	100PF	10%	500V
C68	1-162-117-00	CERAMIC	100PF	10%	500V
C69	1-124-562-11	ELECT	47MF	20%	200V
C70	1-124-171-00	ELECT	100MF	20%	160V
C71	1-162-117-00	CERAMIC	100PF	10%	500V
C72	1-124-562-11	ELECT	47MF	20%	200V
C73	1-124-171-00	ELECT	100MF	20%	160V
C74	1-124-122-11	ELECT	100MF	20%	16V
C75	1-124-122-11	ELECT	100MF	20%	16V
C76	⚠1-161-953-52	CERAMIC	0.0047MF	20%	400V
C77	⚠1-161-953-52	CERAMIC	0.0047MF	20%	400V
C78	1-162-599-12	CERAMIC	0.0047MF	20%	400V
C79	1-162-599-12	CERAMIC	0.0047MF	20%	400V
C80	1-125-658-11	ELECT	560MF	20%	250V
C81	1-125-658-11	ELECT	560MF	20%	250V
C82	1-123-369-00	ELECT	4.7MF	20%	25V
C83	1-101-004-00	CERAMIC	0.01MF		50V
C84	⚠1-136-311-51	FILM	0.47MF	20%	125V
C85	⚠1-162-578-51	CERAMIC	0.0047MF	20%	400V
C86	⚠1-162-578-51	CERAMIC	0.0047MF	20%	400V
C87	⚠1-162-578-51	CERAMIC	0.0047MF	20%	400V
C88	⚠1-162-578-51	CERAMIC	0.0047MF	20%	400V
C89	⚠1-136-311-51	FILM	0.47MF	20%	125V
C90	1-136-171-00	FILM	0.033MF	5%	50V
C92	1-136-171-00	FILM	0.033MF	5%	50V
C94	1-102-038-00	CERAMIC	0.001MF		500V
C95	1-136-173-00	FILM	0.47MF	5%	50V
C96	1-102-050-00	CERAMIC	0.01MF		500V
C97	1-136-173-00	FILM	0.47MF	5%	50V
C98	1-136-173-00	FILM	0.47MF	5%	50V
C99	1-102-050-00	CERAMIC	0.01MF		500V
C100	1-162-117-00	CERAMIC	100PF	10%	500V

⚠ および ▒▒ 印の部品は,安全性を維持するために,重要な部品です。従って交換時は,必ず指定の部品を使用して下さい。

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

GA

REF.NO.	PART NO.	DESCRIPTION				REMARK
C101	1-162-117-00	CERAMIC	100PF	10%	500V	
C102	1-136-601-11	FILM	0.01MF	5%	630V	
C103	1-136-601-11	FILM	0.01MF	5%	630V	
C104	1-124-477-11	ELECT	47MF	20%	16V	
		<DIODE>				
D1	8-719-912-51	DIODE ESAC25-04C				
D2	8-719-918-73	DIODE ESAC25-04N				
D3	8-719-901-73	DIODE ESAD25-04D				
D4	8-719-901-73	DIODE ESAD25-04D				
D5	8-719-988-31	DIODE D10SC6MR				
D6	8-719-510-09	DIODE D10SC6M				
D7	8-719-300-33	DIODE RU-3AM				
D8	8-719-300-52	DIODE CTU-38R				
D9	8-719-300-53	DIODE CTU-38S				
D10	8-719-912-51	DIODE ESAC25-04C				
D11	8-719-918-73	DIODE ESAC25-04N				
D12	8-719-911-19	DIODE 1SS119				
D13	8-719-911-19	DIODE 1SS119				
D14	8-719-100-58	DIODE RD10EB3				
D15	8-719-911-19	DIODE 1SS119				
D16	8-719-911-19	DIODE 1SS119				
D17	8-719-911-19	DIODE 1SS119				
D20	8-719-200-02	DIODE 10E-2				
D21	⚠8-719-300-07	DIODE RB406N				
D22	8-759-157-40	IC UPC574J				
D23	8-719-911-19	DIODE 1SS119				
D24	8-719-100-58	DIODE RD10EB3				
D25	8-719-911-19	DIODE 1SS119				
D26	8-719-003-08	THYRISTOR CR3CM-8				
D27	8-719-982-04	DIODE ERB81-004				
D28	8-719-982-04	DIODE ERB81-004				
D29	8-719-982-04	DIODE ERB81-004				
D30	8-719-982-04	DIODE ERB81-004				
D31	8-719-300-33	DIODE RU-3AM				
D32	8-719-300-33	DIODE RU-3AM				
		<CONNECTOR>				
GA1	1-506-348-XX	PIN, CONNECTOR 3P				
GA2	*1-506-371-00	PIN, CONNECTOR 2P				
GA3	*1-508-768-00	PIN, CONNECTOR (5MM PITCH) 6P				
GA4	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P				
GA5	*1-566-055-11	PIN, CONNECTOR 3P				
GA6	*1-566-055-11	PIN, CONNECTOR 3P				
GA7	*1-566-058-11	PIN, CONNECTOR 6P				
GA8	*1-566-057-11	PIN, CONNECTOR 5P				
GA10	*1-566-054-11	PIN, CONNECTOR 2P				
		<IC>				
IC1	1-806-805-11	IC MC5433				
IC2	8-759-904-94	IC TL494CN				
IC3	8-759-904-94	IC TL494CN				
IC4	8-759-925-54	IC LM2940CT-5.0				
		<COIL>				
L3	1-459-643-11	COIL, CHOKE 525UH				
L4	1-459-643-11	COIL, CHOKE 525UH				
L5	1-459-643-11	COIL, CHOKE 525UH				
L6	1-459-643-11	COIL, CHOKE 525UH				
L7	1-459-207-00	COIL, CORE				
L8	1-459-644-11	COIL, CHOKE 2.9MMH				

⚠ および ▒▒ 印の部品は,安全性を維持するために,重要な部品です。従って交換時は,必ず指定の部品を使用して下さい。

REF.NO.	PART NO.	DESCRIPTION				REMARK
L9	1-459-645-11	COIL, CHOKE 20MMH				
L10	1-421-329-00	COIL, CHOKE				
L11	1-421-329-00	COIL, CHOKE				
L12	1-421-329-00	COIL, CHOKE				
L13	1-421-329-00	COIL, CHOKE				
L14	1-421-329-00	COIL, CHOKE				
L15	1-421-329-00	COIL, CHOKE				
L16	1-421-329-00	COIL, CHOKE				
L17	⚠1-421-590-11	TRANSFORMER, LINE FILTER				(BVM-2811/3011 ONLY)
	⚠1-423-937-11	TRANSFORMER, LINE FILTER				(BVM-3011P ONLY)
L18	⚠1-421-590-11	TRANSFORMER, LINE FILTER				(BVM-2811/3011 ONLY)
	⚠1-423-937-11	TRANSFORMER, LINE FILTER				(BVM-3011P ONLY)
		<TRANSISTOR>				
Q1	8-729-301-76	TRANSISTOR STR8124-R				
Q2	8-729-301-76	TRANSISTOR STR8124-R				
Q3	8-729-140-96	TRANSISTOR 2SD774-34				
Q4	8-729-140-96	TRANSISTOR 2SD774-34				
Q5	8-729-140-96	TRANSISTOR 2SD774-34				
Q6	8-729-140-96	TRANSISTOR 2SD774-34				
Q7	8-729-140-97	TRANSISTOR 2SB734-34				
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q11	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q12	8-729-140-96	TRANSISTOR 2SD774-34				
Q13	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q14	8-729-119-78	TRANSISTOR 2SC2785-HFE				
		<RESISTOR>				
R1	1-215-857-11	METAL OXIDE	10	5%	1W	F
R2	1-215-857-11	METAL OXIDE	10	5%	1W	F
R3	1-247-715-11	CARBON	1.5K	5%	1/4W	
R4	1-215-857-11	METAL OXIDE	10	5%	1W	F
R5	1-215-857-11	METAL OXIDE	10	5%	1W	F
R6	1-249-447-11	CARBON	1	5%	1/4W	F
R7	1-247-692-11	CARBON	22	5%	1/4W	
R8	1-249-418-11	CARBON	1.2K	5%	1/4W	
R9	1-249-382-11	CARBON	1.2	5%	1/4W	F
R10	1-249-447-11	CARBON	1	5%	1/4W	F
R11	1-247-692-11	CARBON	22	5%	1/4W	
R12	1-249-418-11	CARBON	1.2K	5%	1/4W	
R13	1-215-889-00	METAL OXIDE	330	5%	2W	F
R14	1-247-700-11	CARBON	100	5%	1/4W	
R15	1-247-709-11	CARBON	510	5%	1/4W	
R16	1-247-709-11	CARBON	510	5%	1/4W	
R17	1-247-700-11	CARBON	100	5%	1/4W	
R18	1-249-425-11	CARBON	4.7K	5%	1/4W	
R19	1-249-419-11	CARBON	1.5K	5%	1/4W	
R20	1-247-838-00	CARBON	2K	5%	1/4W	
R21	1-249-417-11	CARBON	1K	5%	1/4W	
R22	1-249-409-11	CARBON	220	5%	1/4W	
R23	1-249-417-11	CARBON	1K	5%	1/4W	
R24	1-249-421-11	CARBON	2.2K	5%	1/4W	
R25	1-249-409-11	CARBON	220	5%	1/4W	
R26	1-247-700-11	CARBON	100	5%	1/4W	
R27	1-247-713-11	CARBON	1K	5%	1/4W	
R28	1-247-713-11	CARBON	1K	5%	1/4W	
R29	1-247-700-11	CARBON	100	5%	1/4W	

GA **GB**

- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.
  Should replacement be required, replace only with the value originally used.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION				REMARK
R30	1-215-886-11	METAL OXIDE	100	5%	2W	F
R31	1-215-886-11	METAL OXIDE	100	5%	2W	F
R32	1-215-886-11	METAL OXIDE	100	5%	2W	F
R33	1-247-697-11	CARBON	56	5%	1/4W	F
R34	1-247-697-11	CARBON	56	5%	1/4W	F
R36	1-249-425-11	CARBON	4.7K	5%	1/4W	
R37	1-249-420-11	CARBON	1.8K	5%	1/4W	
R38	1-249-429-11	CARBON	10K	5%	1/4W	
R39	1-249-413-11	CARBON	470	5%	1/4W	
R40	1-215-453-00	METAL	22K	1%	1/4W	
R41	1-249-425-11	CARBON	4.7K	5%	1/4W	
R42	1-215-437-91	METAL	4.7K	1%	1/4W	
R43	1-215-435-00	METAL	3.9K	1%	1/4W	
R44	1-215-427-00	METAL	1.8K	1%	1/4W	
R47	1-216-995-11	METAL	820	1%	10W	
R48	1-215-866-11	METAL OXIDE	330	5%	1W	F
⧓R52 ⚠		METAL OXIDE			2W	F
⧓R53 ⚠		METAL			1/4W	
R54	1-215-901-00	METAL OXIDE	33K	5%	2W	F
R55	1-215-426-00	METAL	1.6K	1%	1/4W	
R60	1-249-420-11	CARBON	1.8K	5%	1/4W	
R61	1-249-420-11	CARBON	1.8K	5%	1/4W	
R62	1-249-429-11	CARBON	10K	5%	1/4W	
R64	1-249-426-11	CARBON	5.6K	5%	1/4W	
R65	1-215-437-91	METAL	4.7K	1%	1/4W	
R66	1-215-453-00	METAL	22K	1%	1/4W	
⧓R67 ⚠		METAL		1%	1/2W	
⧓R68 ⚠		METAL		1%	1/4W	
R74	1-215-889-00	METAL OXIDE	330	5%	2W	F
R77	1-215-433-00	METAL	3.3K	1%	1/4W	
R78	1-215-433-00	METAL	3.3K	1%	1/4W	
R80 ⚠	1-202-643-35	SOLID	820K	10%	1/2W	
R81	1-215-461-00	METAL	47K	1%	1/4W	
R82	1-215-461-00	METAL	47K	1%	1/4W	
R83	1-215-461-00	METAL	47K	1%	1/4W	
R84	1-215-459-00	METAL	39K	1%	1/4W	
R85	1-215-449-00	METAL	15K	1%	1/4W	
R86	1-215-437-91	METAL	4.7K	1%	1/4W	
R87	1-249-405-11	CARBON	100	5%	1/4W	
R88	1-249-433-11	CARBON	22K	5%	1/4W	
R89	1-249-429-11	CARBON	10K	5%	1/4W	
R90	1-249-429-11	CARBON	10K	5%	1/4W	
R91	1-249-429-11	CARBON	10K	5%	1/4W	
R92 ⚠	1-217-295-11	WIREWOUND	5.6	10%	5W	F
R93	1-215-886-11	METAL OXIDE	100	5%	2W	F
R94	1-205-538-00	WIREWOUND	4.7	10%	10W	
R95	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R96	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R97	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R98	1-215-904-11	METAL OXIDE	100K	5%	2W	F
R100	1-212-889-00	FUSIBLE	220	5%	1/4W	F
R101	1-249-470-11	CARBON	0.47	5%	1/2W	F
R102	1-249-470-11	CARBON	0.47	5%	1/2W	F
R103	1-249-470-11	CARBON	0.47	5%	1/2W	F
R104	1-249-377-11	CARBON	0.47	5%	1/4W	F
R105	1-249-386-11	CARBON	2.7	5%	1/4W	F

<VARIABLE RESISTOR>

RV1	1-237-514-21	RES, ADJ, CERMET 500 (+ 15V ADJ)
RV2	1-237-515-21	RES, ADJ, CERMET 1K (+ 150V ADJ)

<RELAY>

RY1	⚠1-515-805-11	RELAY, POWER

<TRANSFORMER>

T1	⚠1-448-433-11	TRANSFORMER, CONVERTER (S.R.T)
T2	⚠1-447-106-11	TRANSFORMER, DRIVE
T3	⚠1-421-624-12	TRANSFORMER, CURRENT
T4	⚠1-447-426-12	TRANSFORMER, CONVERTER
T5	⚠1-448-432-12	TRANSFORMER, CONVERTER (S.R.T)
T6	⚠1-447-106-11	TRANSFORMER, DRIVE
T7	⚠1-421-624-12	TRANSFORMER, CURRENT

<THERMISTOR>

TH1	⚠1-800-820-12	THERMISTOR, POWER
THP1	⚠1-806-387-12	THERMISTOR (POSITIVE)
THP2	⚠1-800-686-33	THERMISTOR (POSITIVE)

****

*1-627-679-11 GB BOARD
****

<CAPACITOR>

C1	1-124-903-11	ELECT	1MF	20%	50V
C2	1-124-903-11	ELECT	1MF	20%	50V

<DIODE>

D1	8-719-911-19	DIODE 1SS119
D2	8-719-110-08	DIODE RD8.2ESB2
D3	8-719-911-19	DIODE 1SS119
D4	8-719-911-19	DIODE 1SS119
D5	8-719-911-19	DIODE 1SS119
D6	8-719-110-08	DIODE RD8.2ESB2
D7	8-719-812-41	DIODE TLR124
D8	8-719-911-19	DIODE 1SS119
D9	8-719-911-19	DIODE 1SS119
D10	8-719-812-41	DIODE TLR124
D11	8-719-110-08	DIODE RD8.2ESB2
D12	8-719-911-19	DIODE 1SS119
D13	8-719-911-19	DIODE 1SS119
D14	8-719-911-19	DIODE 1SS119
D15	8-719-911-19	DIODE 1SS119
D16	8-719-911-19	DIODE 1SS119
D17	8-719-110-08	DIODE RD8.2ESB2
D18	8-719-911-19	DIODE 1SS119
D19	8-719-911-19	DIODE 1SS119

<CONNECTOR>

GB1	*1-506-603-11	PLUG, L TYPE (2.0MM PITCH) 10P

<TRANSISTOR>

Q1	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q5	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q6	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q7	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE

- ⧓の部品の定数は,X線量規制の規格を満足させるため,製造時セット毎に確認し決定したものです。
  万一この部品を交換する場合は,セットに付いている部品と同一のものをご使用下さい。

⚠ および ▒▒ 印の部品は,安全性を維持するために,重要な部品です。従って交換時は,必ず指定の部品を使用して下さい。

REF.NO.	PART NO.	DESCRIPTION				REMARK
Q9	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q10	8-729-119-78	TRANSISTOR 2SC2785-HFE				
		<RESISTOR>				
R1	1-249-427-11	CARBON	6.8K	5%	1/4W	
R2	1-249-428-11	CARBON	8.2K	5%	1/4W	
R3	1-249-429-11	CARBON	10K	5%	1/4W	
R4	1-249-427-11	CARBON	6.8K	5%	1/4W	
R5	1-249-420-11	CARBON	1.8K	5%	1/4W	
R6	1-249-427-11	CARBON	6.8K	5%	1/4W	
R7	1-249-420-11	CARBON	1.8K	5%	1/4W	
R8	1-249-429-11	CARBON	10K	5%	1/4W	
R9	1-249-427-11	CARBON	6.8K	5%	1/4W	
R10	1-249-428-11	CARBON	8.2K	5%	1/4W	
R11	1-249-424-11	CARBON	3.9K	5%	1/4W	
R12	1-249-421-11	CARBON	2.2K	5%	1/4W	
R13	1-249-425-11	CARBON	4.7K	5%	1/4W	
R14	1-249-421-11	CARBON	2.2K	5%	1/4W	
R15	1-249-424-11	CARBON	3.9K	5%	1/4W	
R16	1-249-421-11	CARBON	2.2K	5%	1/4W	
R17	1-249-425-11	CARBON	4.7K	5%	1/4W	
R18	1-249-421-11	CARBON	2.2K	5%	1/4W	
R19	1-249-429-11	CARBON	10K	5%	1/4W	
R20	1-249-429-11	CARBON	10K	5%	1/4W	
R21	1-249-429-11	CARBON	10K	5%	1/4W	
R22	1-249-423-11	CARBON	3.3K	5%	1/4W	
R23	1-249-423-11	CARBON	3.3K	5%	1/4W	
R24	1-249-429-11	CARBON	10K	5%	1/4W	
R25	1-249-429-11	CARBON	10K	5%	1/4W	

****

*1-617-885-11 GC BOARD
****

<CAPACITOR>

C1	1-124-916-11	ELECT	22MF	20%	25V
C2	1-124-916-11	ELECT	22MF	20%	25V
C3	1-124-916-11	ELECT	22MF	20%	25V
C4	1-124-916-11	ELECT	22MF	20%	25V
C5	1-124-916-11	ELECT	22MF	20%	25V
C6	1-124-916-11	ELECT	22MF	20%	25V
C7	1-124-916-11	ELECT	22MF	20%	25V
C8	1-124-916-11	ELECT	22MF	20%	25V
C9	1-124-916-11	ELECT	22MF	20%	25V
C12	1-101-004-00	CERAMIC	0.01MF		50V
C14	1-101-004-00	CERAMIC	0.01MF		50V
C16	1-101-004-00	CERAMIC	0.01MF		50V
C17	1-101-004-00	CERAMIC	0.01MF		50V
C18	1-101-004-00	CERAMIC	0.01MF		50V

<CONNECTOR>

GC1	*1-566-044-11	PIN, CONNECTOR 5P
GC2	*1-566-057-11	PIN, CONNECTOR 5P
GC3	*1-566-044-11	PIN, CONNECTOR 5P

<IC>

IC1	8-759-929-65	IC LM7912CT
IC2	8-759-929-65	IC LM7912CT
IC3	8-759-146-55	IC UPC2412HF
IC4	8-759-146-55	IC UPC2412HF

REF.NO.	PART NO.	DESCRIPTION				REMARK

****

*A-1311-341-A GE BOARD, COMPLETE
****

<CAPACITOR>

C1006	1-136-175-00	FILM	0.068MF	5%	50V
C1007	1-136-153-00	FILM	0.01MF	5%	50V
C1008	1-124-477-11	ELECT	47MF	20%	16V
C1009	1-136-153-00	FILM	0.01MF	5%	50V
C1010	1-124-477-11	ELECT	47MF	20%	16V

<CONNECTOR>

CN13	*1-564-687-11	PIN, CONNECTOR 3P
CN14	*1-564-687-11	PIN, CONNECTOR 3P
CN15	*1-564-687-11	PIN, CONNECTOR 3P
CN16	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P
CN17	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P
CN18	*1-566-055-11	PIN, CONNECTOR 3P
CN19	*1-566-055-11	PIN, CONNECTOR 3P
CN20	*1-566-054-11	PIN, CONNECTOR 2P
CN21	*1-566-056-11	PIN, CONNECTOR 4P
CN22	*1-566-056-11	PIN, CONNECTOR 4P
CN23	*1-566-056-11	PIN, CONNECTOR 4P

<DIODE>

D100	8-719-911-19	DIODE 1SS119
D101	8-719-911-19	DIODE 1SS119

<IC>

IC102	8-759-145-58	IC UPC4558C

<RESISTOR>

R1012	1-247-903-00	CARBON	1M	5%	1/4W

****

*1-617-890-11 HA BOARD
****

<CONNECTOR>

HA1	*1-566-055-11	PIN, CONNECTOR 3P
HA2	*1-566-056-11	PIN, CONNECTOR 4P
HA3	*1-566-064-11	PIN, CONNECTOR 12P
HA4	*1-566-054-11	PIN, CONNECTOR 2P

<RESISTOR>

R1	1-247-814-11	CARBON	200	5%	1/4W
R2	1-215-469-91	METAL	100K	1%	1/4W

<VARIABLE RESISTOR>

RV1	1-237-519-21	RES, ADJ, CERMET 20K (APT)

<SWITCH>

S1	1-570-565-11	SWITCH, PUSH (10 KEY)

REF.NO.	PART NO.	DESCRIPTION	REMARK
**********			
	*1-647-257-11	HW BOARD	
		********	
		(HH BOARD INCLUDING)	
		<HOLDER>	
D1	*4-026-910-00	HOLDER, LED	
D2	*4-026-910-00	HOLDER, LED	
		<DIODE>	
D101	8-719-812-42	DIODE TLY124	
D102	8-719-812-41	DIODE TLR124	
		<RESISTOR>	
R101	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
		<SWITCH>	
S101	1-570-566-11	SWITCH, PUSH (4 KEY)	
**********			
	*1-627-682-11	HH BOARD	
		********	
		<CONNECTOR>	
HH-1	*1-566-614-11	PLUG (L TYPE) 3P	
HH-2	*1-566-614-11	PLUG (L TYPE) 3P	
HH-3	*1-566-614-11	PLUG (L TYPE) 3P	
HH-4	*1-566-614-11	PLUG (L TYPE) 3P	
		<VARIABLE RESISTOR>	
RV1	1-238-332-11	RES, VAR, CARBON 20K (CONTRAST)	
RV2	1-238-332-11	RES, VAR, CARBON 20K (BRIGHTNESS)	
RV3	1-238-332-11	RES, VAR, CARBON 20K (CHROMA)	
RV4	1-238-332-11	RES, VAR, CARBON 20K (PHASE)	
**********			
	*1-647-258-11	HX BOARD	
		********	
		<SWITCH>	
S1	1-692-470-11	SWITCH, PUSH (4 KEY) (INPUT SELECT)	
**********			
	*A-1371-895-A	HY BOARD, COMPLETE	
		**********	
	*4-374-937-01	HOLDER, LED D12~D21,D23~D25,D30~38 D41~D44,D50,D51,D63~D69	
		<CAPACITOR>	
C1	1-124-584-00	ELECT 100MF 20% 10V	
C2	1-124-584-00	ELECT 100MF 20% 10V	
C3	1-124-584-00	ELECT 100MF 20% 10V	
C4	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C5	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
C6	1-163-031-11	CERAMIC CHIP 0.01MF 50V	
		<DIODE>	
D1	8-719-404-46	DIODE MA110	
D2	8-719-404-46	DIODE MA110	
D3	8-719-404-46	DIODE MA110	
D4	8-719-404-46	DIODE MA110	
D5	8-719-404-46	DIODE MA110	
D6	8-719-404-46	DIODE MA110	
D7	8-719-404-46	DIODE MA110	
D8	8-719-404-46	DIODE MA110	
D9	8-719-404-46	DIODE MA110	
D10	8-719-404-46	DIODE MA110	
D11	8-719-404-46	DIODE MA110	
D12	8-719-812-42	DIODE TLY124	
D13	8-719-812-42	DIODE TLY124	
D14	8-719-812-42	DIODE TLY124	
D15	8-719-812-42	DIODE TLY124	
D16	8-719-812-42	DIODE TLY124	
D17	8-719-812-42	DIODE TLY124	
D18	8-719-812-42	DIODE TLY124	
D19	8-719-812-42	DIODE TLY124	
D20	8-719-812-42	DIODE TLY124	
D21	8-719-812-42	DIODE TLY124	
D23	8-719-812-42	DIODE TLY124	
D24	8-719-812-42	DIODE TLY124	
D25	8-719-812-42	DIODE TLY124	
D26	8-719-404-46	DIODE MA110	
D27	8-719-404-46	DIODE MA110	
D28	8-719-404-46	DIODE MA110	
D29	8-719-404-46	DIODE MA110	
D30	8-719-812-42	DIODE TLY124	
D31	8-719-812-42	DIODE TLY124	
D32	8-719-812-42	DIODE TLY124	
D33	8-719-812-42	DIODE TLY124	
D34	8-719-812-42	DIODE TLY124	
D35	8-719-812-42	DIODE TLY124	
D36	8-719-812-42	DIODE TLY124	
D37	8-719-812-42	DIODE TLY124	
D38	8-719-812-42	DIODE TLY124	
D39	8-719-404-46	DIODE MA110	
D40	8-719-404-46	DIODE MA110	
D41	8-719-812-42	DIODE TLY124	
D42	8-719-812-42	DIODE TLY124	
D43	8-719-812-42	DIODE TLY124	
D44	8-719-812-42	DIODE TLY124	
D45	8-719-404-46	DIODE MA110	
D46	8-719-404-46	DIODE MA110	
D47	8-719-404-46	DIODE MA110	
D48	8-719-404-46	DIODE MA110	
D49	8-719-404-46	DIODE MA110	
D50	8-719-812-42	DIODE TLY124	
D51	8-719-812-42	DIODE TLY124	
D52	8-719-404-46	DIODE MA110	
D53	8-719-404-46	DIODE MA110	
D54	8-719-404-46	DIODE MA110	
D55	8-719-404-46	DIODE MA110	
D56	8-719-404-46	DIODE MA110	
D57	8-719-404-46	DIODE MA110	
D58	8-719-404-46	DIODE MA110	
D59	8-719-404-46	DIODE MA110	
D60	8-719-404-46	DIODE MA110	
D61	8-719-404-46	DIODE MA110	

REF.NO.	PART NO.	DESCRIPTION	REMARK
D62	8-719-404-46	DIODE MA110	
D63	8-719-812-42	DIODE TLY124	
D64	8-719-812-42	DIODE TLY124	
D65	8-719-812-42	DIODE TLY124	
D66	8-719-812-42	DIODE TLY124	
D67	8-719-812-42	DIODE TLY124	
D68	8-719-812-42	DIODE TLY124	
D69	8-719-812-42	DIODE TLY124	
		<CONNECTOR>	
HY1	*1-566-045-11	PIN, CONNECTOR 6P	
HY2	*1-566-047-11	PIN, CONNECTOR 8P	
HY3	*1-566-052-11	PIN, CONNECTOR 13P	
HY4	*1-566-047-11	PIN, CONNECTOR 8P	
		<IC>	
IC1	8-757-991-00	IC CX-7991	
IC2	8-757-991-00	IC CX-7991	
IC3	8-757-991-00	IC CX-7991	
		<TRANSISTOR>	
Q1	8-729-107-46	TRANSISTOR 2SC3624A-L15	
		<RESISTOR>	
JR1	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR2	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR3	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR4	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
JR5	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR6	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR7	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR8	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR9	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR10	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR11	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR12	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR13	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR14	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR15	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR16	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR17	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR18	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR19	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R1	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R2	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R3	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R4	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R5	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R6	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R7	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R8	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R9	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R10	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R11	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R12	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R13	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R14	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R15	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R16	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R17	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R18	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R19	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R20	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R21	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R22	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R23	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R24	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R25	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R26	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R27	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R28	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R29	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R30	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R31	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R32	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R33	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R34	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R35	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R36	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R37	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R38	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R39	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R40	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R41	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R42	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R43	1-216-043-00	METAL GLAZE 560 5% 1/10W	
		<SWITCH>	
S1	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(WHITE)
S2	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(GRAY)
S3	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(FORMAT)
S4	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(INPUT/4)
S5	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(SYNC)
S6	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(SYSTEM)
S7	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(YC.SEP)
S8	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(WHITE BAL)
S9	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(ASPECT)
S10	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(LOCAL/REMOTE)
S11	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(MENU)
S12	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(SEL)
S13	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(ESC)
S14	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(GAIN)
S15	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(BIAS)
S16	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(CUR SOR)
S17	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(ENT)
S19	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(RESET)
S20	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(RED)
S21	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(ADJUST)
S22	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(GREEN)
S23	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(LEVEL)
S24	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(PIC SET UP)
S25	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(S.A.D.VITC MARKER)
S26	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(FILTER)
S27	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(MATRIX)
S28	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(PAL.S/SECAM)
S29	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(CROSS HATCH)
S30	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(SPLIT SCREEN)
S31	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(BLUE)
S32	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(POSITION)

HZ

REF.NO.	PART NO.	DESCRIPTION		REMARK
	A-1375-121-A	HZ BOARD, COMPLETE **********		
		<CAPACITOR>		
C1	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C2	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C3	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C4	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C5	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C6	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C7	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C8	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C9	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C10	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C11	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C12	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C13	1-163-227-11	CERAMIC CHIP 10PF	0.5PF	50V
C14	1-163-239-11	CERAMIC CHIP 33PF	5%	50V
C15	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C16	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C17	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C18	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C19	1-124-779-00	ELECT 10MF	20%	16V
C21	1-126-769-21	ELECT CHIP 100MF	20%	14V
C22	1-126-769-21	ELECT CHIP 100MF	20%	14V
C23	1-126-204-11	ELECT 47MF	20%	16V
C24	1-126-204-11	ELECT 47MF	20%	16V
C25	1-126-769-21	ELECT CHIP 100MF	20%	14V
C26	1-126-769-21	ELECT CHIP 100MF	20%	14V
C41	1-126-769-21	ELECT CHIP 100MF	20%	14V
C42	1-126-769-21	ELECT CHIP 100MF	20%	14V
C43	1-126-204-11	ELECT 47MF	20%	16V
C44	1-126-204-11	ELECT 47MF	20%	16V
C45	1-126-204-11	ELECT 47MF	20%	16V
C46	1-126-769-21	ELECT CHIP 100MF	20%	14V
C47	1-126-769-21	ELECT CHIP 100MF	20%	14V
C61	1-126-769-21	ELECT CHIP 100MF	20%	14V
C63	1-126-769-21	ELECT CHIP 100MF	20%	14V
C64	1-126-769-21	ELECT CHIP 100MF	20%	14V
C65	1-126-769-21	ELECT CHIP 100MF	20%	14V
C66	1-126-769-21	ELECT CHIP 100MF	20%	14V
C67	1-126-769-21	ELECT CHIP 100MF	20%	14V
C68	1-126-769-21	ELECT CHIP 100MF	20%	14V
C69	1-126-769-21	ELECT CHIP 100MF	20%	14V
C70	1-126-769-21	ELECT CHIP 100MF	20%	14V
C71	1-126-769-21	ELECT CHIP 100MF	20%	14V
C81	1-126-769-21	ELECT CHIP 100MF	20%	14V
C91	1-126-769-21	ELECT CHIP 100MF	20%	14V
C92	1-126-769-21	ELECT CHIP 100MF	20%	14V
C102	1-126-769-21	ELECT CHIP 100MF	20%	14V
C111	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C112	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C121	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C122	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C123	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C124	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C125	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C126	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C127	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C128	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C129	1-136-161-00	FILM 0.047MF	5%	50V
C141	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C142	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C143	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C144	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C145	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C146	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C147	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C148	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C149	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C150	1-136-161-00	FILM 0.047MF	5%	50V
C161	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C162	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C163	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C164	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C165	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C166	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C167	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C168	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C169	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C170	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C171	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C172	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C173	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C174	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C175	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C176	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C177	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C178	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C179	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C180	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C181	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C182	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C183	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C191	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C192	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C201	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C202	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C203	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C204	1-163-031-11	CERAMIC CHIP 0.01MF		50V
		<DIODE>		
D1	8-719-109-88	DIODE RD5.6ESB1		
D2	8-719-109-88	DIODE RD5.6ESB1		
D3	8-719-109-88	DIODE RD5.6ESB1		
D4	8-719-109-88	DIODE RD5.6ESB1		
D5	8-719-109-88	DIODE RD5.6ESB1		
D6	8-719-109-88	DIODE RD5.6ESB1		
D7	8-719-109-88	DIODE RD5.6ESB1		
D8	8-719-109-88	DIODE RD5.6ESB1		
D9	8-719-109-88	DIODE RD5.6ESB1		
D10	8-719-109-88	DIODE RD5.6ESB1		
D11	8-719-109-88	DIODE RD5.6ESB1		
D12	8-719-109-88	DIODE RD5.6ESB1		
D13	8-719-109-88	DIODE RD5.6ESB1		
D14	8-719-109-88	DIODE RD5.6ESB1		
D15	8-719-109-88	DIODE RD5.6ESB1		
D16	8-719-106-88	DIODE RD15M-B1		
D17	8-719-104-34	DIODE 1S2836		
D18	8-719-400-18	DIODE MA152WK		
D19	8-719-400-18	DIODE MA152WK		
D21	8-719-106-23	DIODE RD7.5M-B2		
D22	8-719-106-23	DIODE RD7.5M-B2		

REF.NO.	PART NO.	DESCRIPTION	REMARK
		<CONNECTOR>	
HZ1	*1-566-064-11	PIN, CONNECTOR 12P	
HZ2	*1-566-062-11	PIN, CONNECTOR 10P	
HZ3	*1-566-060-11	PIN, CONNECTOR 8P	
HZ4	*1-566-064-11	PIN, CONNECTOR 12P	
HZ5	*1-566-058-11	PIN, CONNECTOR 6P	
HZ6	*1-566-064-11	PIN, CONNECTOR 12P	
HZ7	*1-566-064-11	PIN, CONNECTOR 12P	
HZ8	*1-566-064-11	PIN, CONNECTOR 12P	
HZ9	*1-566-058-11	PIN, CONNECTOR 6P	
HZ10	*1-566-062-11	PIN, CONNECTOR 10P	
HZ11	*1-566-062-11	PIN, CONNECTOR 10P	
HZ12	*1-566-065-11	PIN, CONNECTOR 13P	
		<IC>	
IC1	8-759-939-25	IC SN75176BP	
IC2	8-759-939-25	IC SN75176BP	
IC3	8-759-164-54	IC X25040P	
IC4	8-759-995-76	IC PST529C	
IC5	8-759-981-48	IC TL082M	
IC6	8-759-112-72	IC UPD6142G-101	
IC7	8-759-172-00	IC TC74HCT02AF(EL)	
IC8	8-759-172-01	IC TC74HCT32AF(EL)	
IC9	8-759-233-66	IC TC74HCT04AF	
IC10	8-759-981-48	IC TL082M	
IC11	8-759-172-02	IC TC74HCT139AF(EL)	
IC12	8-759-009-05	IC MC14051BF	
IC13	8-759-938-68	IC CXD1095Q	
IC14	8-759-981-48	IC TL082M	
IC15	8-759-238-69	IC TC74HC299AF-TP1	
IC16	8-759-009-05	IC MC14051BF	
IC17	8-759-172-00	IC TC74HCT02AF(EL)	
IC18	8-759-981-48	IC TL082M	
IC19	8-759-981-48	IC TL082M	
IC20	8-759-518-73	IC DAC8043GP	
IC21	8-759-518-76	IC REF02EZ	
IC22	8-759-981-48	IC TL082M	
IC23	8-759-981-48	IC TL082M	
IC24	8-759-183-29	IC HD6475368CP-BVM1.10	
		<IC SOCKET>	
ICS3	1-526-652-21	SOCKET, IC (DP) 8P	
ICS24	1-540-069-11	SOCKET, IC (IC113) 84P	
		<COIL>	
L1	1-408-409-00	INDUCTOR 10UH	
L2	1-408-409-00	INDUCTOR 10UH	
L3	1-410-210-21	INDUCTOR CHIP 33UH	
L4	1-408-409-00	INDUCTOR 10UH	
		<TRANSISTOR>	
Q2	8-729-901-01	TRANSISTOR DTC144EK	
Q3	8-729-901-01	TRANSISTOR DTC144EK	
Q4	8-729-901-01	TRANSISTOR DTC144EK	
Q5	8-729-901-01	TRANSISTOR DTC144EK	
Q6	8-729-901-01	TRANSISTOR DTC144EK	
Q7	8-729-901-01	TRANSISTOR DTC144EK	
Q8	8-729-901-01	TRANSISTOR DTC144EK	
Q9	8-729-901-01	TRANSISTOR DTC144EK	
Q10	8-729-901-01	TRANSISTOR DTC144EK	
Q11	8-729-901-01	TRANSISTOR DTC144EK	
Q12	8-729-901-01	TRANSISTOR DTC144EK	
Q13	8-729-901-01	TRANSISTOR DTC144EK	
Q14	8-729-901-01	TRANSISTOR DTC144EK	
Q15	8-729-901-01	TRANSISTOR DTC144EK	
Q16	8-729-901-01	TRANSISTOR DTC144EK	
Q17	8-729-901-01	TRANSISTOR DTC144EK	
Q18	8-729-901-01	TRANSISTOR DTC144EK	
Q19	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q20	8-729-901-01	TRANSISTOR DTC144EK	
Q21	8-729-901-01	TRANSISTOR DTC144EK	
Q22	8-729-901-01	TRANSISTOR DTC144EK	
Q23	8-729-901-01	TRANSISTOR DTC144EK	
Q24	8-729-901-01	TRANSISTOR DTC144EK	
Q25	8-729-901-01	TRANSISTOR DTC144EK	
Q26	8-729-901-01	TRANSISTOR DTC144EK	
Q27	8-729-901-01	TRANSISTOR DTC144EK	
Q28	8-729-901-06	TRANSISTOR DTA144EK	
Q29	8-729-901-01	TRANSISTOR DTC144EK	
Q30	8-729-122-63	TRANSISTOR 2SA1226-B4	
Q900	8-729-101-11	TRANSISTOR 2SC2351-R2	
Q901	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q902	8-729-901-01	TRANSISTOR DTC144EK	
Q903	8-729-901-01	TRANSISTOR DTC144EK	
		<RESISTOR>	
JR1	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR2	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR3	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR4	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR5	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R1	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R2	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R3	1-249-417-11	CARBON 1K 5% 1/4W	
R4	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R5	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R6	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R7	1-249-417-11	CARBON 1K 5% 1/4W	
R8	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R9	1-249-417-11	CARBON 1K 5% 1/4W	
R10	1-216-620-91	METAL CHIP 51 0.50% 1/10W	
R11	1-216-080-00	METAL GLAZE 20K 5% 1/10W	
R12	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R13	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R14	1-249-417-11	CARBON 1K 5% 1/4W	
R15	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R16	1-249-417-11	CARBON 1K 5% 1/4W	
R17	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R18	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R19	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R20	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R21	1-249-417-11	CARBON 1K 5% 1/4W	
R22	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R23	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R24	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R25	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R26	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R27	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R28	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R29	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R30	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R31	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R32	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R33	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R34	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R35	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R36	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R37	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R38	1-249-417-11	CARBON	1K	5%	1/4W	
R39	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R40	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R41	1-249-417-11	CARBON	1K	5%	1/4W	
R42	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R43	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R44	1-249-417-11	CARBON	1K	5%	1/4W	
R45	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R46	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R47	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R48	1-249-417-11	CARBON	1K	5%	1/4W	
R49	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R50	1-249-417-11	CARBON	1K	5%	1/4W	
R51	1-249-417-11	CARBON	1K	5%	1/4W	
R52	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R53	1-249-417-11	CARBON	1K	5%	1/4W	
R54	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R55	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R56	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R57	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R58	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R59	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R60	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R61	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R62	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R63	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R64	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R65	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R66	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R67	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R68	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R69	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R70	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R71	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R73	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R74	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R75	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R76	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R77	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R78	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R79	1-216-080-00	METAL GLAZE	20K	5%	1/10W	
R80	1-216-088-00	METAL GLAZE	43K	5%	1/10W	
R81	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R82	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R83	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R84	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R85	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R86	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R87	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R88	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R89	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R90	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R91	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R92	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R93	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R94	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R95	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

REF.NO.	PART NO.	DESCRIPTION				REMARK
R100	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R101	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R102	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R103	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R104	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R105	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R106	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R107	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R111	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R112	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R181	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R191	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R208	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R209	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	

<SWITCH>

S1	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(PASS WORD RESET)
S2	1-572-482-11	SWITCH, KEY BOARD (1 KEY)	(RESET)

<CRYSTAL>

X1	1-577-121-11	VIBRATOR, CRYSTAL

****

*A-1394-456-A PA BOARD, COMPLETE

****

<CAPACITOR>

C101	1-124-046-00	ELECT	10MF	20%	160V
C102	1-126-967-11	ELECT	47MF	20%	25V
C103	1-123-024-21	ELECT	33MF		160V
C104	1-136-171-00	FILM	0.33MF	5%	50V
C105	1-108-700-11	MYLAR	0.047MF	10%	200V
C106	1-108-700-11	MYLAR	0.047MF	10%	200V
C107	1-102-030-00	CERAMIC	330PF	10%	500V
C108	1-136-072-00	FILM	0.0063MF	3%	2KV
C109	1-161-753-00	CERAMIC	470PF	10%	3KV
C110	1-162-114-00	CERAMIC	0.0047MF		2KV
C111	1-136-557-11	FILM	0.0033MF	10%	630V
C116	1-126-233-11	ELECT	22MF	20%	16V
C117	1-124-910-11	ELECT	47MF	20%	16V
C118	1-102-973-00	CERAMIC	100PF	5%	50V
C119	1-108-796-11	MYLAR	0.0022MF	5%	50V
C120	1-126-964-11	ELECT	10MF	20%	16V
C121	1-102-074-00	CERAMIC	0.001MF	10%	50V
C122	1-136-165-00	FILM	0.1MF	5%	50V
C123	1-136-169-00	FILM	0.22MF	5%	50V
C124	1-136-111-00	FILM	1MF	5%	200V
C125	1-136-169-00	FILM	0.22MF	5%	50V
C126	1-102-030-00	CERAMIC	330PF	10%	500V
C127	1-130-736-11	FILM	0.01MF	5%	50V
C128	1-130-994-11	FILM	0.033MF	5%	50V
C129	1-123-369-00	ELECT	4.7MF	20%	25V
C130	1-102-074-00	CERAMIC	0.001MF	10%	50V
C131	1-136-153-00	FILM	0.01MF	5%	50V
C201	1-108-634-11	MYLAR	0.047MF	10%	100V
C202	1-126-964-11	ELECT	10MF	20%	16V
C203	1-101-006-00	CERAMIC	0.047MF		50V
C204	1-126-948-11	ELECT	100MF	20%	25V
C205	1-126-541-11	ELECT	330MF	20%	16V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

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Should replacement be required, replace only with the value originally used.

PA

REF.NO.	PART NO.	DESCRIPTION				REMARK
C207	1-126-948-11	ELECT	100MF	20%	25V	
C209	1-101-006-00	CERAMIC	0.047MF		50V	
C212	1-101-006-00	CERAMIC	0.047MF		50V	
C213	1-124-915-11	ELECT	10MF	20%	50V	
C214	1-124-915-11	ELECT	10MF	20%	50V	
C215	⚠1-123-316-51	ELECT	10MF	20%	16V	
C216	⚠1-136-485-91	FILM	0.01MF	5%	50V	
C217	1-126-964-11	ELECT	10MF	20%	16V	
C218	1-126-541-11	ELECT	330MF	20%	16V	
C219	1-101-004-00	CERAMIC	0.01MF		50V	
C221	1-136-171-00	FILM	0.033MF	5%	50V	
C250	1-124-122-11	ELECT	100MF	20%	16V	
		<DIODE>				
D102	8-719-300-80	DIODE RU-1C				
D103	8-719-300-80	DIODE RU-1C				
D104	8-719-300-80	DIODE RU-1C				
D105	8-719-300-80	DIODE RU-1C				
D106	8-719-901-19	DIODE V11N				
D109	8-719-911-19	DIODE 1SS119				
D110	8-719-911-19	DIODE 1SS119				
D111	8-719-109-63	DIODE RD3.0ESB2				
D201	8-719-911-19	DIODE 1SS119				
D202	8-719-109-72	DIODE RD3.9ESB2				
D203	8-719-911-19	DIODE 1SS119				
D204	8-719-000-28	THYRISTOR CR02AM-8				
D205	8-719-000-28	THYRISTOR CR02AM-8				
D206	8-719-911-19	DIODE 1SS119				
D207	8-719-911-19	DIODE 1SS119				
D215	⚠8-759-107-91	IC UPC574J-TP				
D216	⚠8-759-107-91	IC UPC574J-TP				
D217	8-719-911-19	DIODE 1SS119				
D218	8-719-911-19	DIODE 1SS119				
D219	8-719-911-19	DIODE 1SS119				
D220	8-719-911-19	DIODE 1SS119				
D250	8-719-911-19	DIODE 1SS119				
D251	8-719-911-19	DIODE 1SS119				
		<IC>				
IC1	8-759-100-75	IC UPC1394C				
IC2	8-759-729-03	IC NJM2903D				
IC3	8-759-729-03	IC NJM2903D				
IC4	8-759-503-91	IC TL082ACP				
		<COIL>				
L1	1-459-215-00	COIL (WITH CORE)				
		<CONNECTOR>				
PA1	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P				
PA2	*1-508-766-00	PIN, CONNECTOR (5MM PITCH) 4P				
		<TRANSISTOR>				
Q101	8-729-802-71	TRANSISTOR 2SA1407-D				
Q102	8-729-201-62	TRANSISTOR 2SC2555-2				
Q103	8-729-202-53	TRANSISTOR 2SD1556-LB				
Q104	8-729-804-48	TRANSISTOR 2SC3675				
Q105	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q107	8-729-119-80	TRANSISTOR 2SC2688-LK				
Q108	8-729-119-80	TRANSISTOR 2SC2688-LK				
Q109	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q110	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q111	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q112	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q201	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q202	8-729-119-78	TRANSISTOR 2SC2785-HFE				
		<RESISTOR>				
R101	1-216-348-00	METAL OXIDE	0.82	5%	1W	F
R102	1-247-885-00	CARBON	180K	5%	1/4W	
R103	1-249-419-11	CARBON	1.5K	5%	1/4W	
R104	1-216-464-11	METAL OXIDE	18K	5%	2W	F
R105	1-216-359-00	METAL OXIDE	6.8	5%	1W	F
R106	1-216-350-11	METAL OXIDE	1.2	5%	1W	F
R108	1-212-998-00	FUSIBLE	470	5%	1/2W	F
R109	1-215-898-11	METAL OXIDE	10K	5%	2W	F
R123	1-215-459-00	METAL	39K	1%	1/4W	
⊠R124	⚠	METAL			1/6W	
R125	1-215-455-00	METAL	27K	1%	1/4W	
⊠R126	⚠	METAL			1/6W	
R127	1-249-434-11	CARBON	27K	5%	1/4W	
R128	1-249-427-11	CARBON	6.8K	5%	1/4W	
R129	1-249-440-11	CARBON	82K	5%	1/4W	
R130	1-249-425-11	CARBON	4.7K	5%	1/4W	
R131	1-249-429-11	CARBON	10K	5%	1/4W	
R132	1-249-428-11	CARBON	8.2K	5%	1/4W	
R133	1-249-417-11	CARBON	1K	5%	1/4W	
R134	1-249-437-11	CARBON	47K	5%	1/4W	
R135	1-249-441-11	CARBON	100K	5%	1/4W	
R136	1-249-423-11	CARBON	3.3K	5%	1/4W	
R137	1-215-461-00	METAL	47K	1%	1/4W	
R138	1-215-440-00	METAL	6.2K	1%	1/4W	
R139	1-249-424-11	CARBON	3.9K	5%	1/4W	
R140	1-249-417-11	CARBON	1K	5%	1/4W	
R141	1-249-429-11	CARBON	10K	5%	1/4W	
R142	1-249-419-11	CARBON	1.5K	5%	1/4W	
R143	1-215-439-00	METAL	5.6K	1%	1/4W	
R144	1-215-439-00	METAL	5.6K	1%	1/4W	
R146	1-249-422-11	CARBON	2.7K	5%	1/4W	
R148	1-249-422-11	CARBON	2.7K	5%	1/4W	
R150	1-249-417-11	CARBON	1K	5%	1/4W	
R151	1-249-423-11	CARBON	3.3K	5%	1/4W	
R153	1-249-441-11	CARBON	100K	5%	1/4W	
R201	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R202	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R203	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R204	1-215-899-11	METAL OXIDE	15K	5%	2W	F
R205	1-249-429-11	CARBON	10K	5%	1/4W	
R206	1-249-421-11	CARBON	2.2K	5%	1/4W	
R207	1-249-393-11	CARBON	10	5%	1/4W	
R208	1-249-429-11	CARBON	10K	5%	1/4W	
R209	1-249-441-11	CARBON	100K	5%	1/4W	
R210	1-249-429-11	CARBON	10K	5%	1/4W	
R211	1-249-429-11	CARBON	10K	5%	1/4W	
R212	1-249-433-11	CARBON	22K	5%	1/4W	
R213	1-249-415-11	CARBON	680	5%	1/4W	
R214	1-249-429-11	CARBON	10K	5%	1/4W	
R220	1-215-455-00	METAL	27K	1%	1/4W	
R221	1-215-437-91	METAL	4.7K	1%	1/4W	
⊠R222	⚠	METAL			1/6W	
R223	1-215-486-00	METAL	510K	1%	1/4W	
R224	1-215-471-00	METAL	120K	1%	1/4W	
R225	1-215-458-00	METAL	36K	1%	1/4W	

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R226	1-215-449-00	METAL	15K	1%	1/4W	
⊠R227 ⚠		METAL			1/6W	
⊠R228 ⚠		METAL			1/6W	
R231	1-249-415-11	CARBON	680	5%	1/4W	
R232	1-249-429-11	CARBON	10K	5%	1/4W	
R237	1-215-455-00	METAL	27K	1%	1/4W	
R238	1-215-437-91	METAL	4.7K	1%	1/4W	
⊠R239 ⚠		METAL			1/6W	
R240	1-215-486-00	METAL	510K	1%	1/4W	
R241	1-215-471-00	METAL	120K	1%	1/4W	
R242	1-249-422-11	CARBON	2.7K	5%	1/4W	
R243	1-249-422-11	CARBON	2.7K	5%	1/4W	
R245	1-247-887-00	CARBON	220K	5%	1/4W	
R247	1-249-422-11	CARBON	2.7K	5%	1/4W	
R248	1-249-399-11	CARBON	33	5%	1/4W	
R249	1-249-399-11	CARBON	33	5%	1/4W	
R250	1-249-411-11	CARBON	330	5%	1/4W	
R301	1-247-893-11	CARBON	390K	5%	1/4W	
R302	1-247-893-11	CARBON	390K	5%	1/4W	
R303	1-247-893-11	CARBON	390K	5%	1/4W	
R304	1-247-893-11	CARBON	390K	5%	1/4W	
R305	1-247-893-11	CARBON	390K	5%	1/4W	
R306	1-247-899-11	CARBON	680K	5%	1/4W	
R307	1-247-899-11	CARBON	680K	5%	1/4W	
R308	1-247-899-11	CARBON	680K	5%	1/4W	
R309	1-249-417-11	CARBON	1K	5%	1/4W	
R310	1-249-430-11	CARBON	12K	5%	1/4W	
R311	1-247-887-00	CARBON	220K	5%	1/4W	
R312	1-247-881-00	CARBON	120K	5%	1/4W	
R313	1-202-719-00	SOLID	1M	10%	1/2W	
R350	1-249-385-11	CARBON	2.2	5%	1/4W	F
		<VARIABLE RESISTOR>				
RV1	1-237-500-21	RES, ADJ, CERMET 1K (HV ADJ)				
		<TRANSFORMER>				
T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE				
T2	1-437-079-00	TRANSFORMER, HORIZONTAL DRIVE				
T3	1-439-384-11	LOT				

****

*1-617-891-21 PB BOARD
****

*4-341-752-01 EYELET EY1~EY7

<CAPACITOR>

C1	1-130-959-00	FILM	0.047MF	10%	400V
C2	1-130-959-00	FILM	0.047MF	10%	400V

<CONNECTOR>

PB1	*1-508-766-00	PIN, CONNECTOR (5MM PITCH) 4P				
		<RESISTOR>				
R1	1-215-426-00	METAL	1.6K	1%	1/4W	
R2	1-215-438-00	METAL	5.1K	1%	1/4W	
R3	1-215-426-00	METAL	1.6K	1%	1/4W	
R4	1-215-438-00	METAL	5.1K	1%	1/4W	
R5	1-215-438-00	METAL	5.1K	1%	1/4W	
R6	1-215-438-00	METAL	5.1K	1%	1/4W	

****

*1-617-895-11 QA BOARD
****

<CAPACITOR>

C1	1-108-692-11	MYLAR	0.01MF	10%	200V
C2	1-126-235-11	ELECT	100MF	20%	16V
C3	1-101-004-00	CERAMIC	0.01MF		50V
C4	1-108-692-11	MYLAR	0.01MF	10%	200V
C5	1-126-235-11	ELECT	100MF	20%	16V
C6	1-101-004-00	CERAMIC	0.01MF		50V
C7	1-108-692-11	MYLAR	0.01MF	10%	200V
C8	1-126-235-11	ELECT	100MF	20%	16V
C9	1-101-004-00	CERAMIC	0.01MF		50V
C10	1-102-951-00	CERAMIC	15PF	5%	50V
C11	1-102-951-00	CERAMIC	15PF	5%	50V
C12	1-102-951-00	CERAMIC	15PF	5%	50V

<RESISTOR>

R1	1-215-449-00	METAL	15K	1%	1/4W
R2	1-215-449-00	METAL	15K	1%	1/4W
R3	1-249-439-11	CARBON	68K	5%	1/4W

<SWITCH>

S1	1-570-857-11	SWITCH, SLIDE
S2	1-570-857-11	SWITCH, SLIDE
S3	1-570-857-11	SWITCH, SLIDE

****

*1-618-786-11 QB BOARD
****

<CAPACITOR>

C1	1-108-692-11	MYLAR	0.01MF	10%	200V
C2	1-126-235-11	ELECT	100MF	20%	16V
C3	1-101-004-00	CERAMIC	0.01MF		50V
C4	1-108-692-11	MYLAR	0.01MF	10%	200V
C5	1-126-235-11	ELECT	100MF	20%	16V
C6	1-101-004-00	CERAMIC	0.01MF		50V
C7	1-108-692-11	MYLAR	0.01MF	10%	200V
C8	1-126-235-11	ELECT	100MF	20%	16V
C9	1-101-004-00	CERAMIC	0.01MF		50V
C10	1-102-951-00	CERAMIC	15PF	5%	50V
C11	1-102-951-00	CERAMIC	15PF	5%	50V
C12	1-102-951-00	CERAMIC	15PF	5%	50V

<RESISTOR>

R1	1-215-449-00	METAL	15K	1%	1/4W
R2	1-215-449-00	METAL	15K	1%	1/4W
R3	1-215-449-00	METAL	15K	1%	1/4W

<SWITCH>

S1	1-570-857-11	SWITCH, SLIDE
S2	1-570-857-11	SWITCH, SLIDE
S3	1-570-857-11	SWITCH, SLIDE

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R1

REF.NO.	PART NO.	DESCRIPTION			REMARK
**********					
*A-1394-473-A	R1 BOARD, COMPLETE				
	**********				
	<CAPACITOR>				
C1	1-101-004-00	CERAMIC	0.01MF		50V
C2	1-101-004-00	CERAMIC	0.01MF		50V
C3	1-101-004-00	CERAMIC	0.01MF		50V
C4	1-102-074-00	CERAMIC	0.001MF	10%	50V
C5	1-102-074-00	CERAMIC	0.001MF	10%	50V
C6	1-101-004-00	CERAMIC	0.01MF		50V
C7	1-101-004-00	CERAMIC	0.01MF		50V
C8	1-102-074-00	CERAMIC	0.001MF	10%	50V
C9	1-102-074-00	CERAMIC	0.001MF	10%	50V
C10	1-102-074-00	CERAMIC	0.001MF	10%	50V
C11	1-102-074-00	CERAMIC	0.001MF	10%	50V
C12	1-102-074-00	CERAMIC	0.001MF	10%	50V
C13	1-102-074-00	CERAMIC	0.001MF	10%	50V
C14	1-126-964-11	ELECT	10MF	20%	16V
C15	1-126-964-11	ELECT	10MF	20%	16V
C16	1-126-964-11	ELECT	10MF	20%	16V
C17	1-126-964-11	ELECT	10MF	20%	16V
C18	1-126-948-11	ELECT	100MF	20%	10V
C19	1-124-910-11	ELECT	47MF	20%	16V
C20	1-124-910-11	ELECT	47MF	20%	16V
C21	1-126-964-11	ELECT	10MF	20%	16V
C22	1-126-964-11	ELECT	10MF	20%	16V
C24	1-136-165-00	FILM	0.1MF	5%	50V
C25	1-136-165-00	FILM	0.1MF	5%	50V
C40	1-124-910-11	ELECT	47MF	20%	16V
C41	1-102-074-00	CERAMIC	0.001MF	10%	50V
C50	1-126-953-11	ELECT	2200MF	20%	16V
C51	1-124-360-00	ELECT	1000MF	20%	16V
C52	1-102-074-00	CERAMIC	0.001MF	10%	50V
C60	1-126-953-11	ELECT	2200MF	20%	16V
C61	1-124-360-00	ELECT	1000MF	20%	16V
C62	1-102-074-00	CERAMIC	0.001MF	10%	50V
C70	1-136-165-00	FILM	0.1MF	5%	50V
C71	1-102-074-00	CERAMIC	0.001MF	10%	50V
C72	1-102-074-00	CERAMIC	0.001MF	10%	50V
C80	1-124-910-11	ELECT	47MF	20%	16V
C81	1-124-910-11	ELECT	47MF	20%	16V
C82	1-124-910-11	ELECT	47MF	20%	16V
C83	1-124-910-11	ELECT	47MF	20%	16V
C84	1-124-910-11	ELECT	47MF	20%	16V
C85	1-124-910-11	ELECT	47MF	20%	16V
C100	1-102-074-00	CERAMIC	0.001MF	10%	50V
C101	1-102-074-00	CERAMIC	0.001MF	10%	50V
C102	1-136-165-00	FILM	0.1MF	5%	50V
C200	1-102-074-00	CERAMIC	0.001MF	10%	50V
C201	1-102-074-00	CERAMIC	0.001MF	10%	50V
C202	1-136-165-00	FILM	0.1MF	5%	50V
C300	1-102-074-00	CERAMIC	0.001MF	10%	50V
C301	1-102-074-00	CERAMIC	0.001MF	10%	50V
C302	1-136-165-00	FILM	0.1MF	5%	50V
C400	1-102-074-00	CERAMIC	0.001MF	10%	50V
C401	1-102-074-00	CERAMIC	0.001MF	10%	50V
C402	1-136-165-00	FILM	0.1MF	5%	50V
C500	1-102-074-00	CERAMIC	0.001MF	10%	50V
C501	1-102-074-00	CERAMIC	0.001MF	10%	50V
C502	1-136-165-00	FILM	0.1MF	5%	50V
C600	1-102-074-00	CERAMIC	0.001MF	10%	50V
C601	1-102-074-00	CERAMIC	0.001MF	10%	50V
C602	1-136-165-00	FILM	0.1MF	5%	50V
C701	1-101-004-00	CERAMIC	0.01MF		50V
C702	1-101-004-00	CERAMIC	0.01MF		50V
C703	1-101-004-00	CERAMIC	0.01MF		50V
C704	1-101-004-00	CERAMIC	0.01MF		50V
C705	1-101-004-00	CERAMIC	0.01MF		50V
C706	1-101-004-00	CERAMIC	0.01MF		50V
C707	1-101-004-00	CERAMIC	0.01MF		50V
C708	1-101-004-00	CERAMIC	0.01MF		50V
C709	1-101-004-00	CERAMIC	0.01MF		50V
C710	1-101-004-00	CERAMIC	0.01MF		50V
C711	1-101-004-00	CERAMIC	0.01MF		50V
C712	1-101-004-00	CERAMIC	0.01MF		50V
C713	1-101-004-00	CERAMIC	0.01MF		50V
C714	1-101-004-00	CERAMIC	0.01MF		50V
C715	1-101-004-00	CERAMIC	0.01MF		50V
C716	1-101-004-00	CERAMIC	0.01MF		50V
	<CONNECTOR>				
CN1	*1-566-056-11	PIN, CONNECTOR 4P			
CN2	*1-566-055-11	PIN, CONNECTOR 3P			
CN3	*1-566-054-11	PIN, CONNECTOR 2P			
CN4	*1-566-054-11	PIN, CONNECTOR 2P			
CN5	*1-566-060-11	PIN, CONNECTOR 8P			
CN6	*1-566-058-11	PIN, CONNECTOR 6P			
CN7	*1-566-056-11	PIN, CONNECTOR 4P			
CN8	*1-566-056-11	PIN, CONNECTOR 4P			
CN9	*1-566-056-11	PIN, CONNECTOR 4P			
	<DIODE>				
D1	8-719-971-20	DIODE ERC38-06			
D2	8-719-971-20	DIODE ERC38-06			
D3	8-719-911-19	DIODE 1SS119			
D4	8-719-911-19	DIODE 1SS119			
D5	8-719-110-03	DIODE RD7.5ESB2			
D6	8-719-110-03	DIODE RD7.5ESB2			
D7	8-719-911-19	DIODE 1SS119			
D8	8-719-110-03	DIODE RD7.5ESB2			
	<IC>				
IC1	8-759-232-07	IC TC74HC04AP			
IC2	8-759-001-23	IC MC74HC109N			
IC3	8-759-771-25	IC MB7112E-HDM			
IC4	8-749-900-14	IC CP2005S			
IC5	8-759-145-58	IC UPC4558C			
IC6	8-759-145-58	IC UPC4558C			
IC7	8-759-145-58	IC UPC4558C			
IC8	8-759-701-65	IC NJM79M05FA			
IC9	8-759-107-33	IC UPC1060C			
IC10	8-759-503-91	IC TL082ACP			
IC11	8-759-145-58	IC UPC4558C			
IC12	8-759-145-58	IC UPC4558C			
IC13	8-759-145-58	IC UPC4558C			
IC14	8-759-145-58	IC UPC4558C			
IC15	8-759-145-58	IC UPC4558C			
IC16	8-759-145-58	IC UPC4558C			
IC17	8-759-145-58	IC UPC4558C			
IC18	8-759-145-58	IC UPC4558C			
IC19	8-759-140-53	IC UPD4053BC			
IC20	8-759-140-53	IC UPD4053BC			

7 ELECTRICAL PARTS LIST

R1

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC21	8-759-145-58	IC UPC4558C	
IC22	8-759-145-58	IC UPC4558C	
IC23	8-759-145-58	IC UPC4558C	
		<TRANSISTOR>	
Q1	8-729-313-82	TRANSISTOR 2SD1138-C	
Q2	8-729-386-12	TRANSISTOR 2SB861-C	
Q3	8-729-313-82	TRANSISTOR 2SD1138-C	
Q4	8-729-386-12	TRANSISTOR 2SB861-C	
Q5	8-729-313-82	TRANSISTOR 2SD1138-C	
Q6	8-729-386-12	TRANSISTOR 2SB861-C	
Q7	8-729-313-82	TRANSISTOR 2SD1138-C	
Q8	8-729-386-12	TRANSISTOR 2SB861-C	
Q9	8-729-313-82	TRANSISTOR 2SD1138-C	
Q10	8-729-386-12	TRANSISTOR 2SB861-C	
Q11	8-729-313-82	TRANSISTOR 2SD1138-C	
Q12	8-729-386-12	TRANSISTOR 2SB861-C	
Q13	8-729-900-36	TRANSISTOR DTC124ES	
		<RESISTOR>	
R1	1-215-445-00	METAL 10K 1% 1/4W	
R2	1-215-439-00	METAL 5.6K 1% 1/4W	
R3	1-249-417-11	CARBON 1K 5% 1/4W	
R4	1-249-417-11	CARBON 1K 5% 1/4W	
R5	1-249-417-11	CARBON 1K 5% 1/4W	
R6	1-249-417-11	CARBON 1K 5% 1/4W	
R7	1-249-423-11	CARBON 3.3K 5% 1/4W	
R8	1-249-423-11	CARBON 3.3K 5% 1/4W	
R9	1-215-433-00	METAL 3.3K 1% 1/4W	
R10	1-215-433-00	METAL 3.3K 1% 1/4W	
R11	1-215-439-00	METAL 5.6K 1% 1/4W	
R12	1-215-439-00	METAL 5.6K 1% 1/4W	
R13	1-215-445-00	METAL 10K 1% 1/4W	
R14	1-215-445-00	METAL 10K 1% 1/4W	
R15	1-249-426-11	CARBON 5.6K 5% 1/4W	
R16	1-215-439-00	METAL 5.6K 1% 1/4W	
R17	1-215-439-00	METAL 5.6K 1% 1/4W	
R18	1-215-445-00	METAL 10K 1% 1/4W	
R19	1-215-445-00	METAL 10K 1% 1/4W	
R20	1-249-426-11	CARBON 5.6K 5% 1/4W	
R21	1-215-445-00	METAL 10K 1% 1/4W	
R22	1-215-445-00	METAL 10K 1% 1/4W	
R23	1-215-444-00	METAL 9.1K 1% 1/4W	
R24	1-249-423-11	CARBON 3.3K 5% 1/4W	
R25	1-215-445-00	METAL 10K 1% 1/4W	
R26	1-215-445-00	METAL 10K 1% 1/4W	
R27	1-249-426-11	CARBON 5.6K 5% 1/4W	
R28	1-249-417-11	CARBON 1K 5% 1/4W	
R29	1-249-417-11	CARBON 1K 5% 1/4W	
R30	1-215-405-00	METAL 220 1% 1/4W	
R31	1-249-429-11	CARBON 10K 5% 1/4W	
R32	1-249-429-11	CARBON 10K 5% 1/4W	
R33	1-249-417-11	CARBON 1K 5% 1/4W	
R34	1-249-417-11	CARBON 1K 5% 1/4W	
R35	1-249-429-11	CARBON 10K 5% 1/4W	
R36	1-249-429-11	CARBON 10K 5% 1/4W	
R40	1-215-469-91	METAL 100K 1% 1/4W	
R41	1-249-429-11	CARBON 10K 5% 1/4W	
R42	1-215-469-91	METAL 100K 1% 1/4W	
R43	1-215-437-91	METAL 4.7K 1% 1/4W	
R44	1-215-437-91	METAL 4.7K 1% 1/4W	
R45	1-215-431-00	METAL 2.7K 1% 1/4W	
R46	1-215-445-00	METAL 10K 1% 1/4W	
R47	1-215-448-00	METAL 13K 1% 1/4W	
R48	1-249-424-11	CARBON 3.9K 5% 1/4W	
R50	1-214-940-11	METAL 1.3M 1% 1/2W	
R51	1-215-473-00	METAL 150K 1% 1/4W	
R52	1-247-895-00	CARBON 470K 5% 1/4W	
R53	1-247-895-00	CARBON 470K 5% 1/4W	
R54	1-215-445-00	METAL 10K 1% 1/4W	
R55	1-215-441-00	METAL 6.8K 1% 1/4W	
R56	1-215-445-00	METAL 10K 1% 1/4W	
R57	1-215-445-00	METAL 10K 1% 1/4W	
R58	1-249-421-11	CARBON 2.2K 5% 1/4W	
R60	1-214-947-00	METAL 2.7M 1% 1/2W	
R61	1-215-493-00	METAL 1M 1% 1/4W	
R62	1-247-895-00	CARBON 470K 5% 1/4W	
R63	1-247-895-00	CARBON 470K 5% 1/4W	
R64	1-215-445-00	METAL 10K 1% 1/4W	
R65	1-215-443-00	METAL 8.2K 1% 1/4W	
R66	1-215-445-00	METAL 10K 1% 1/4W	
R67	1-215-445-00	METAL 10K 1% 1/4W	
R68	1-249-422-11	CARBON 2.7K 5% 1/4W	
R70	1-249-433-11	CARBON 22K 5% 1/4W	
R71	1-215-445-00	METAL 10K 1% 1/4W	
R72	1-249-429-11	CARBON 10K 5% 1/4W	
R73	1-215-469-91	METAL 100K 1% 1/4W	
R74	1-215-437-91	METAL 4.7K 1% 1/4W	
R75	1-215-447-00	METAL 12K 1% 1/4W	
R76	1-215-445-00	METAL 10K 1% 1/4W	
R77	1-215-445-00	METAL 10K 1% 1/4W	
R78	1-215-459-00	METAL 39K 1% 1/4W	
R79	1-249-425-11	CARBON 4.7K 5% 1/4W	
R81	1-215-443-00	METAL 8.2K 1% 1/4W	
R82	1-215-435-00	METAL 3.9K 1% 1/4W	
R83	1-215-443-00	METAL 8.2K 1% 1/4W	
R84	1-215-435-00	METAL 3.9K 1% 1/4W	
R110	1-215-421-00	METAL 1K 1% 1/4W	
R111	1-215-453-00	METAL 22K 1% 1/4W	
R112	1-215-453-00	METAL 22K 1% 1/4W	
R113	1-215-457-00	METAL 33K 1% 1/4W	
R114	1-215-445-00	METAL 10K 1% 1/4W	
R115	1-215-445-00	METAL 10K 1% 1/4W	
R120	1-215-453-00	METAL 22K 1% 1/4W	
R121	1-249-423-11	CARBON 3.3K 5% 1/4W	
R122	1-215-454-00	METAL 24K 1% 1/4W	
R123	1-215-445-00	METAL 10K 1% 1/4W	
R124	1-215-453-00	METAL 22K 1% 1/4W	
R125	1-215-433-00	METAL 3.3K 1% 1/4W	
R126	1-249-422-11	CARBON 2.7K 5% 1/4W	
R127	1-249-382-11	CARBON 1.2 5% 1/4W	F
R128	1-249-382-11	CARBON 1.2 5% 1/4W	F
R129	1-216-355-11	METAL OXIDE 3.3 5% 1W	F
R210	1-215-421-00	METAL 1K 1% 1/4W	
R211	1-215-453-00	METAL 22K 1% 1/4W	
R212	1-215-453-00	METAL 22K 1% 1/4W	
R216	1-215-451-00	METAL 18K 1% 1/4W	
R217	1-215-445-00	METAL 10K 1% 1/4W	
R218	1-215-445-00	METAL 10K 1% 1/4W	
R220	1-215-453-00	METAL 22K 1% 1/4W	
R221	1-249-423-11	CARBON 3.3K 5% 1/4W	
R222	1-215-454-00	METAL 24K 1% 1/4W	
R223	1-215-445-00	METAL 10K 1% 1/4W	
R224	1-215-453-00	METAL 22K 1% 1/4W	
R225	1-215-433-00	METAL 3.3K 1% 1/4W	

R1 R2

REF.NO.	PART NO.	DESCRIPTION				REMARK
R226	1-249-422-11	CARBON	2.7K	5%	1/4W	
R227	1-249-382-11	CARBON	1.2	5%	1/4W	F
R228	1-249-382-11	CARBON	1.2	5%	1/4W	F
R229	1-216-355-11	METAL OXIDE	3.3	5%	1W	F
R310	1-215-421-00	METAL	1K	1%	1/4W	
R311	1-215-453-00	METAL	22K	1%	1/4W	
R320	1-215-453-00	METAL	22K	1%	1/4W	
R321	1-249-426-11	CARBON	5.6K	5%	1/4W	
R322	1-215-454-00	METAL	24K	1%	1/4W	
R323	1-215-445-00	METAL	10K	1%	1/4W	
R324	1-215-453-00	METAL	22K	1%	1/4W	
R325	1-215-441-00	METAL	6.8K	1%	1/4W	
R326	1-249-426-11	CARBON	5.6K	5%	1/4W	
R327	1-249-382-11	CARBON	1.2	5%	1/4W	F
R328	1-249-382-11	CARBON	1.2	5%	1/4W	F
R329	1-216-355-11	METAL OXIDE	3.3	5%	1W	F
R410	1-215-421-00	METAL	1K	1%	1/4W	
R411	1-215-453-00	METAL	22K	1%	1/4W	
R420	1-215-453-00	METAL	22K	1%	1/4W	
R421	1-249-426-11	CARBON	5.6K	5%	1/4W	
R422	1-215-454-00	METAL	24K	1%	1/4W	
R423	1-215-445-00	METAL	10K	1%	1/4W	
R424	1-215-453-00	METAL	22K	1%	1/4W	
R425	1-215-441-00	METAL	6.8K	1%	1/4W	
R426	1-249-426-11	CARBON	5.6K	5%	1/4W	
R427	1-249-382-11	CARBON	1.2	5%	1/4W	F
R428	1-249-382-11	CARBON	1.2	5%	1/4W	F
R429	1-216-355-11	METAL OXIDE	3.3	5%	1W	F
R510	1-215-421-00	METAL	1K	1%	1/4W	
R511	1-215-453-00	METAL	22K	1%	1/4W	
R512	1-215-453-00	METAL	22K	1%	1/4W	
R513	1-215-453-00	METAL	22K	1%	1/4W	
R514	1-215-445-00	METAL	10K	1%	1/4W	
R515	1-215-445-00	METAL	10K	1%	1/4W	
R520	1-215-453-00	METAL	22K	1%	1/4W	
R521	1-249-423-11	CARBON	3.3K	5%	1/4W	
R522	1-215-454-00	METAL	24K	1%	1/4W	
R523	1-215-445-00	METAL	10K	1%	1/4W	
R524	1-215-453-00	METAL	22K	1%	1/4W	
R525	1-215-433-00	METAL	3.3K	1%	1/4W	
R526	1-249-422-11	CARBON	2.7K	5%	1/4W	
R527	1-249-382-11	CARBON	1.2	5%	1/4W	F
R528	1-249-382-11	CARBON	1.2	5%	1/4W	F
R529	1-216-355-11	METAL OXIDE	3.3	5%	1W	F
R610	1-215-421-00	METAL	1K	1%	1/4W	
R611	1-215-453-00	METAL	22K	1%	1/4W	
R612	1-215-453-00	METAL	22K	1%	1/4W	
R616	1-215-453-00	METAL	22K	1%	1/4W	
R617	1-215-445-00	METAL	10K	1%	1/4W	
R618	1-215-445-00	METAL	10K	1%	1/4W	
R620	1-215-453-00	METAL	22K	1%	1/4W	
R621	1-249-423-11	CARBON	3.3K	5%	1/4W	
R622	1-215-454-00	METAL	24K	1%	1/4W	
R623	1-215-445-00	METAL	10K	1%	1/4W	
R624	1-215-453-00	METAL	22K	1%	1/4W	
R625	1-215-433-00	METAL	3.3K	1%	1/4W	
R626	1-249-422-11	CARBON	2.7K	5%	1/4W	
R627	1-249-382-11	CARBON	1.2	5%	1/4W	F
R628	1-249-382-11	CARBON	1.2	5%	1/4W	F
R629	1-216-355-11	METAL OXIDE	3.3	5%	1W	F

<RESISTOR BLOCK>

RB1	1-232-029-11	COMPOSITION CIRCUIT BLOCK
RB2	1-249-429-11	COMPOSITION CIRCUIT BLOCK

<VARIABLE RESISTOR>

RV1	1-237-516-21	RES, ADJ, CERMET 2K (TERRESTRIAL MAGNETISM CORRECTION)
RV2	1-237-517-21	RES, ADJ, CERMET 5K (TERRESTRIAL MAGNETISM CORRECTION)
RV3	1-237-517-21	RES, ADJ, CERMET 5K (BEAM LANDING CORRECTION)
RV4	1-237-518-21	RES, ADJ, CERMET 10K (BEAM LANDING CORRECTION)
RV5	1-237-518-21	RES, ADJ, CERMET 10K (BEAM LANDING CORRECTION)
RV6	1-237-516-21	RES, ADJ, CERMET 2K

****

*A-1390-370-A R2 BOARD, COMPLETE
****

<CAPACITOR>

C1000	1-136-165-00	FILM	0.1MF	5%	50V
C1001	1-136-153-00	FILM	0.01MF	5%	50V
C1002	1-124-589-11	ELECT	47MF	20%	16V
C1003	1-124-589-11	ELECT	47MF	20%	16V
C1004	1-136-153-00	FILM	0.01MF	5%	50V
C1005	1-124-589-11	ELECT	47MF	20%	16V

<CONNECTOR>

CN11	*1-566-060-11	PIN, CONNECTOR 8P
CN12	*1-566-058-11	PIN, CONNECTOR 6P

<IC>

IC100	8-759-000-49	IC MC14066BCP
IC101	8-759-000-49	IC MC14066BCP

<RESISTOR>

R1000	1-215-459-00	METAL	39K	1%	1/4W
R1001	1-215-459-00	METAL	39K	1%	1/4W
R1002	1-215-459-00	METAL	39K	1%	1/4W
R1003	1-215-459-00	METAL	39K	1%	1/4W
R1004	1-215-459-00	METAL	39K	1%	1/4W
R1005	1-215-459-00	METAL	39K	1%	1/4W
R1006	1-215-453-00	METAL	22K	1%	1/4W
R1007	1-215-453-00	METAL	22K	1%	1/4W
R1008	1-215-453-00	METAL	22K	1%	1/4W
R1009	1-215-453-00	METAL	22K	1%	1/4W
R1010	1-215-453-00	METAL	22K	1%	1/4W
R1011	1-215-453-00	METAL	22K	1%	1/4W

<VARIABLE RESISTOR>

RV100	1-237-518-21	RES, ADJ, CERMET 10K (LANDING FINE ADJ.TOP.L)
RV101	1-237-518-21	RES, ADJ, CERMET 10K (LANDING FINE ADJ.BOTTOM.L)
RV102	1-237-518-21	RES, ADJ, CERMET 10K (LANDING FINE ADJ.TOP.C)
RV103	1-237-518-21	RES, ADJ, CERMET 10K (LANDING FINE ADJ.BOTTOM.C)

REF.NO.	PART NO.	DESCRIPTION	REMARK
RV104	1-237-518-21	RES, ADJ, CERMET 10K (LANDING FINE ADJ.TOP.R)	
RV105	1-237-518-21	RES, ADJ, CERMET 10K (LANDING FINE ADJ.BOTTOM.R)	
RV106	1-237-518-21	RES, ADJ, CERMET 10K (LANDING ADJ.PRESET.TOP.L)	
RV107	1-237-518-21	RES, ADJ, CERMET 10K (LANDING ADJ.PRESET.BOTTOM.L)	
RV108	1-237-518-21	RES, ADJ, CERMET 10K (LANDING ADJ.PRESET.TOP.C)	
RV109	1-237-518-21	RES, ADJ, CERMET 10K (LANDING ADJ.PRESET.BOTTOM.C)	
RV110	1-237-518-21	RES, ADJ, CERMET 10K (LANDING ADJ.PRESET.TOP.R)	
RV111	1-237-518-21	RES, ADJ, CERMET 10K (LANDING ADJ.PRESET.BOTTOM.R)	
		<SWITCH>	
SW1	1-553-634-00	SWITCH, ROTARY (LANDING ADJ DIRECTION)	
SW2	1-692-175-11	SWITCH, TOGGLE (LANDING ADJ)	
SW3	1-692-175-11	SWITCH, TOGGLE (LANDING FINE ADJ)	
		**********	
	*1-647-911-11	TA BOARD ********	
		<CONNECTOR>	
TA1	*1-566-054-11	PIN, CONNECTOR 2P	
TA2	*1-566-055-11	PIN, CONNECTOR 3P	
TA3	*1-566-056-11	PIN, CONNECTOR 4P	
TA4	*1-566-057-11	PIN, CONNECTOR 5P	
TA5	*1-566-058-11	PIN, CONNECTOR 6P	
TA6	*1-566-055-11	PIN, CONNECTOR 3P	
TA7	*1-566-058-11	PIN, CONNECTOR 6P	
TA8	*1-566-042-11	PIN, CONNECTOR 3P	
TA9	*1-566-045-11	PIN, CONNECTOR 6P	
TA10	*1-566-045-11	PIN, CONNECTOR 6P	
TA11	*1-566-045-11	PIN, CONNECTOR 6P	
TA12	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
TA13	*1-561-337-00	CONNECTOR, MULTI	
TA14	*1-561-337-00	CONNECTOR, MULTI	
TA15	*1-561-337-00	CONNECTOR, MULTI	
		**********	
	*A-1390-369-A	TB BOARD, COMPLETE **********	
		<CONNECTOR>	
CN1	*1-564-431-11	POST, CONNECTOR 3P	
CN2	*1-564-431-11	POST, CONNECTOR 3P	
CN11	1-561-724-00	SOCKET, CONNECTOR 2P	
CN12	1-561-724-00	SOCKET, CONNECTOR 2P	
TB4	*1-566-054-11	PIN, CONNECTOR 2P	
TB5	*1-566-054-11	PIN, CONNECTOR 2P	
TB6	*1-566-060-11	PIN, CONNECTOR 8P	
TB7	*1-566-054-11	PIN, CONNECTOR 2P	
TB8	*1-566-058-11	PIN, CONNECTOR 6P	
TB9	*1-566-060-11	PIN, CONNECTOR 8P	
TB10	*1-566-064-11	PIN, CONNECTOR 12P	
TB11	*1-566-055-11	PIN, CONNECTOR 3P	
TB12	*1-566-064-11	PIN, CONNECTOR 12P	
TB13	*1-566-062-11	PIN, CONNECTOR 10P	
TB14	*1-566-064-11	PIN, CONNECTOR 12P	
TB15	*1-566-060-11	PIN, CONNECTOR 8P	
TB16	*1-566-057-11	PIN, CONNECTOR 5P	
TB17	*1-566-057-11	PIN, CONNECTOR 5P	
TB18	*1-566-055-11	PIN, CONNECTOR 3P	
TB19	*1-566-056-11	PIN, CONNECTOR 4P	
TB20	*1-566-056-11	PIN, CONNECTOR 4P	
TB21	*1-566-056-11	PIN, CONNECTOR 4P	
TB22	*1-566-054-11	PIN, CONNECTOR 2P	
TB23	*1-566-054-11	PIN, CONNECTOR 2P	
TB24	*1-566-054-11	PIN, CONNECTOR 2P	
TB28	*1-566-062-11	PIN, CONNECTOR 10P	
TB29	*1-566-060-11	PIN, CONNECTOR 8P	
TB31	*1-561-337-00	CONNECTOR, MULTI	
TB32	*1-561-337-00	CONNECTOR, MULTI	
TB33	*1-561-337-00	CONNECTOR, MULTI	
TB34	*1-561-337-00	CONNECTOR, MULTI	
TB35	*1-561-337-00	CONNECTOR, MULTI	
TB36	*1-561-337-00	CONNECTOR, MULTI	
TB37	*1-561-337-00	CONNECTOR, MULTI	
TB38	*1-561-337-00	CONNECTOR, MULTI	
TB39	*1-561-337-00	CONNECTOR, MULTI	
TB40	*1-561-337-00	CONNECTOR, MULTI	
TB101	*1-566-055-11	PIN, CONNECTOR 3P	
		<RESISTOR>	
R100	1-247-841-11	CARBON 2.7K 5% 1/4W	
		**********	
	*1-627-677-11	V BOARD (BVM-3011/3011P ONLY) *******	
	1-563-265-11	CONNECTOR, MULTIPLE 10P	
		<COMPOSITION CIRCUIT BLOCK>	
CP1	1-232-350-11	COMPOSITION CIRCUIT BLOCK	
		<RESISTOR>	
R1	1-249-405-11	CARBON 100 5% 1/4W	
R2	1-249-405-11	CARBON 100 5% 1/4W	
R3	1-249-405-11	CARBON 100 5% 1/4W	
R4	1-249-405-11	CARBON 100 5% 1/4W	
R5	1-249-405-11	CARBON 100 5% 1/4W	
R6	1-249-405-11	CARBON 100 5% 1/4W	
R7	1-249-405-11	CARBON 100 5% 1/4W	
		**********	
	*1-637-136-11	V2 BOARD (BVM-2811 ONLY) ********	
		<CONNECTOR>	
CN2	1-563-265-11	CONNECTOR, MULTIPLE 10P	
		<DIODE>	
D1	8-719-110-36	DIODE RD13ESB2	
D2	8-719-110-36	DIODE RD13ESB2	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifies par une trame et une marque ⚠ sont critiques pour la securite.
Ne les remplacer que par une piece portant le numero specifie.

REF.NO.	PART NO.	DESCRIPTION				REMARK
		<RESISTOR>				
R1	1-249-405-11	CARBON	100	5%	1/4W	
R2	1-249-405-11	CARBON	100	5%	1/4W	
R3	1-249-405-11	CARBON	100	5%	1/4W	
R4	1-249-405-11	CARBON	100	5%	1/4W	
R5	1-249-405-11	CARBON	100	5%	1/4W	
R6	1-249-405-11	CARBON	100	5%	1/4W	
R7	1-249-405-11	CARBON	100	5%	1/4W	
R8	1-249-405-11	CARBON	100	5%	1/4W	
R9	1-249-405-11	CARBON	100	5%	1/4W	
		**********				
	*1-627-678-11	W BOARD (BVM-3011/3011P ONLY)				
		*******				
		<CAPACITOR>				
C1	1-108-692-11	MYLAR	0.01MF	10%	200V	
C2	1-108-692-11	MYLAR	0.01MF	10%	200V	
		<RESISTOR>				
R1	1-214-702-00	METAL	75	1%	1/4W	
R2	1-214-702-00	METAL	75	1%	1/4W	
R3	1-214-702-00	METAL	75	1%	1/4W	
		**********				
	*A-1373-426-A	Y BOARD, COMPLETE				
		**********				
		<DIODE>				
D1	8-719-812-43	DIODE TLG124A				
		<CONNECTOR>				
TB7	1-900-052-15	CONNECTOR ASSY, MICRO 2P				
		**********				
	*A-1394-088-A	Z BOARD, COMPLETE				
		**********				
	*1-561-337-21	CONNECTOR, MULTI				
		**********				
		MISCELLANEOUS				
		**********				
	⚠1-237-165-13	RESISTOR ASSY, HIGH-VOLTAGE				
	⚠1-413-682-11	REGULATOR, SWITCHING (LW30-01)				
	1-426-292-11	COIL, LANDING CORRECTION (A)				
	1-426-293-11	COIL, LANDING CORRECTION (B)				
	⚠1-426-294-11	COIL, DEMAGNETIZATION				
	⚠1-439-382-21	TRANSFORMER ASSY, FLYBACK (NX-2011)				
	⚠1-453-103-51	HIGH-VOLTAGE BLOCK (HB-203D)				
	1-565-791-11	CONNECTOR, BNC 1P				
	1-569-711-11	CONNECTOR, BNC (BVM-2811 ONLY)				
	⚠1-571-877-12	SWITCH, PUSH (AC POWER)				
	*1-590-367-11	CABLE, MINIATURE PIN (BVM-2811 ONLY)				
	*1-590-367-21	CABLE, MINIATURE PIN (BVM-2811 ONLY)				
	*1-590-367-31	CABLE, MINIATURE PIN (BVM-2811 ONLY)				
	*1-590-367-41	CABLE, MINIATURE PIN (BVM-2811 ONLY)				
	1-941-422-15	CONNECTOR ASSY (ROUND TYPE) 12P				
	1-941-802-01	CONNECTOR ASSY, MICRO 5P(BVM-2811 ONLY)				
V901	⚠ 8-738-451-70	ITC ASSY (BVM-3011 ONLY)				
	⚠ 8-738-456-75	ITC ASSY (BVM-2811 ONLY)				
	⚠ 8-738-451-75	ITC ASSY (BVM-3011P ONLY)				

⚠ および ▒▒ 印の部品は,安全性を維持するために,重要な部品です。従って交換時は,必ず指定の部品を使用して下さい。

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